



SECOND ANNUAL
ANNOUNCEMENT
OF THE
PROVINCIAL INSTITUTE
OF
TECHNOLOGY AND ART
Calgary, Alberta



1921-1922



SECOND ANNUAL
ANNOUNCEMENT
OF THE
PROVINCIAL INSTITUTE
OF
TECHNOLOGY AND ART
Calgary, Alberta



1921-1922

THE PROVINCIAL INSTITUTE of TECHNOLOGY *and* ART

UNDER THE DIRECTION OF THE
DEPARTMENT OF EDUCATION
Province of Alberta

Hon. Geo. P. Smith.....*Minister of Education*

OFFICIALS IN CHARGE OF INSTITUTE

J. T. Ross.....*Deputy Minister*
D. A. Campbell.....*Director of Technical Education*

OTHER OFFICIALS OF THE DEPARTMENT

G. Fred McNally.....*Supervisor of Schools*
G. W. Gorman.....*Chief Inspector*
H. J. Spicer.....*Registrar*
Joseph Morgan....*Supervisor of Consolidated Schools*
F. S. Carr.....*Supervisor of Schools among
New Canadians*
V. G. Gosnell.....*Secretary and Assistant Deputy
Minister*

THE PRESENT FUNCTION OF THE PROVINCIAL INSTITUTE OF TECH- NOLOGY AND ART, CALGARY

THE universally recognized policy of Departments of Education is to encourage local School Boards to provide public and secondary education for their special districts. Under this policy have developed public, consolidated and high schools, commercial, pre-vocational and technical schools. Above these are the universities, supported and controlled by the State. The State has also supported and controlled special schools, such as Normal Schools and Schools of Agriculture, in order to provide a type of instruction outside the Province of the schools under local control and not within the professional field of the work carried on at the University. It is as such that the Institute is functioning at present.



After an exploration had been made of the industrial field in Alberta, keeping in view its mines, power plants and factories, its railways and telegraph lines, its immense coal areas which are always closely associated throughout the world with industrial development, keeping also in view a manifest determination on the part of large numbers of its population to secure a better technical training at whatever cost, it seemed evident that an experiment in a field not at present

being provided for by local School Boards or by the University authorities would be successful. Courses in mining, steam and electrical engineering of a semi-professional character were offered. These were intended to prepare the candidate to qualify for the certificates issued by the Provincial Departments of Mines and Public Works and the numbers of such certificates issued per year indicated that there would be a large annual supply of candidates seeking certificates of competency as Mine Managers and Stationary Engineers in charge of power plants.

The response to the public announcement that these and other similar courses were available under competent instructors sponsored by the Department of Education, which had also provided a valuable equipment, was unprecedented in the history of similar institutions in Canada and on this continent. Although the work could not be got under way until November 8th, 1920, the total enrolment in all courses amounted to 636 individual students.

The courses are intensive and vocational and are a real contribution to the educational services carried on under the direction of the Department of Education of this Province.

As an indication of the stride taken in its first term's work it is only necessary to point out that the following classes were organized:

(a) Full Time Day Classes—Enrolment..	165
(b) Part Time Day Classes—Enrolment..	24
(c) Evening Classes—	Enrolment..227
(d) Correspondence Classes—Enrolment.	220

Total Enrolment.....636

This is an unexampled record for a first term and the problem of what these students would have done had this opportunity not been given is a thought-provoking and serious one. The courses offered made an appeal to young men in every section of the Province. Practically all of the correspondence students

were from out-of-town points, while 105 day students were non-residents of Calgary. Even a number of the evening class and part-time students were transient residents of the city for the winter months. The wide distribution of students indicates that there was a demand and a need of a province-wide character which these useful courses did meet at once. It is therefore the intention to continue the work along these lines during the next year.

GEO. P. SMITH,
Minister of Education.

THE TEACHING STAFF

A group of ambitious and energetic specialists forms the nucleus of the permanent staff of the Institute. These teachers are qualified by their technical training and experience to provide a type of instruction of a character to increase the efficiency and value of the services of all young men who come under their direction and influence. All the teachers are thoroughly familiar with Alberta conditions, its industries, its farms, and its mines. It is their ambition to assist in promoting the usefulness of the young men of the Province and they welcome the opportunity of being of service in an educational way to all who desire help.

CONDITIONS OF ADMISSION

The instruction offered at the Provincial Institute is now open to the public. Prior to the inauguration of the work by the Province in November, 1920, the buildings were used for re-training soldiers under the Soldiers' Civil Re-establishment Board. Such a restriction does not now exist. Applications will be received from anyone over 15 years of age who desires a course, and every effort will be made to adapt the work to the capacities of the students. In some courses the students must have qualifications approved by the staff in order that the staff may be certain that real progress may be made. Applications for admission should be made as early as possible before the opening on October 4, 1921. While students will be admitted during the term, it is advisable that all taking regular or full term courses should be present at the opening day.

Candidates for 1st and 2nd class certificates in Mining should enrol for these courses prior to September 1st in order that they may spread the work over the 36 weeks before the holding of the examinations by the Mines Branch of the Department of Public Works.

THE NEW INSTITUTE BUILDINGS

A start has been made to provide a group of permanent buildings for the work of the Institute. The scheme consists of three buildings:

- (a) Main teaching building,
- (b) Work-shop building,
- (c) Power Plant.

The main building is 340 feet in length and 90 feet in depth. This building consists of a central block containing the administrative offices and the assembly hall on the main floor. On the second floor are the common staff rooms and separate staff rooms and gallery of the assembly hall. On the third floor are the library, gymnasium and locker rooms.

The west wing of the main building is to be used exclusively for the Normal School and its Practice School.

The east wing will be used by the Institute of Technology and Art and provides on the main floor for laboratories and lecture rooms. The second floor of the east wing provides for the Household Economics department. On the third floor are the Art and Drafting rooms.

In the basement under the assembly hall is a dining room and a service kitchen.

This main building, which is to be entirely fireproof, is to be constructed of brick with stone facing and is designed after the Collegiate Gothic style of architecture. The special feature of the central block consists of two towers and the whole structure situated on an elevated site will afford a commanding view of the Rocky Mountains and of the City of Calgary.

The work-shop building is approximately 125 feet in the rear of the main building. This building is 317

feet long and 100 feet in width. It is one story in height, and divided off into units providing shops for:

- Steam Engineering,
- Electrical Engineering,
- Tractor Engineering,
- Gas Engine work,
- Machine shop practice,
- Auto Mechanics,
- Forging, and
- Woodworking.

Located in the Shop building are:

- 2 Lecture rooms,
- Staff rooms,
- Offices,
- Tool and Supply room, and
- Manual Training room for Normal students.

The Power House, 50 ft. x 100 ft. and situated immediately in the rear of the work-shop building, consists of a boiler-room with provision for three 250 horsepower high-pressure water-tube boilers equipped with mechanical stokers. In the room will also be the overhead coal bunkers with latest type of coal and ash-conveying machinery. Adjoining the boiler room on the same floor is the engine room, to be equipped with various types of electrical generating machinery. In the basement under the engine-room will be the pumping machinery for the water supply and heating system.

The whole institution will be heated by forced circulation of hot water. The water will be heated in economizers using the gases from the furnaces for pre-heating purposes.

The Power House is designed with a view to research work on fuels, for experimental work, and for instruction in power house engineering.

The contracts call for the completion of the whole scheme in the late summer of 1922.

The buildings have been designed by, and construction is now under the supervision of, Mr. R. P. Blakey, F.R.I.B.A., Provincial Architect for the Department of Public Works.

STAFF OF TEACHERS

<i>Shop Director</i>	J. H. Ross. (Acting Principal)
<i>Mining</i>	C. C. Richards, B.Sc. Andrew W. Baxter
<i>Steam Engineering</i>	Robt. M. Dingwall, A.R.T.C. W. H. Broughton.
<i>Science and Mathematics</i> ..	(to be appointed)
<i>Drafting</i>	Leo E. Pearson L. F. Fyles, B.Sc.
<i>Tractors</i>	T. A. Hedley A. C. Wagner A. E. Muncaster
<i>Motor Mechanics</i>	C. A. Choate
<i>Electricity</i>	Robt. Gendall J. M. Bloomfield, B.Sc.
<i>Battery and Ignition</i>	F. N. Rhodes H. G. Hodges
<i>Telegraphy</i>	George Campbell.
<i>Forging</i>	M. McLellan.

CALENDAR

1921

Tuesday,

July 5th.. Special Summer School for Teachers opens.

Friday,

Aug. 5th.. Special Summer School for Teachers closes.

Monday,

Aug. 15th.. Registration for Correspondence Courses in Mining Engineering begins.

Tuesday,

Sept. 6th.. First lecture in Correspondence Course in Mining Engineering leaves the Institute.

Thursday,

Sept. 15th.. Registration begins for regular courses and Correspondence courses in Steam Engineering.

Tuesday,

Oct. 4th.. Classes open in all regular courses.

Thursday,

Oct. 6th.. First lecture of Correspondence Course in Steam Engineering leaves the Institute.

Monday,

Oct. 10th.. Registration begins for Evening Classes.

Monday,

Oct. 17th.. Evening Classes open.

Monday,

Nov. 21st.. First Special Tractor Course opens.

Thursday,

Dec. 22nd.. Close of Institute for Christmas Holidays
First Special Tractor Course ends.

1922

Wednesday,

Jan. 4th..Institute re-opens for all classes.

Tuesday,

Jan. 10th..Second Special Tractor Course begins.

Friday,

Feb. 10th..Second Special Tractor Course ends.

Tuesday,

Feb. 14th..Third Special Tractor Course begins.

Friday,

Mar.17th..Third Special Tractor Course ends.

Tuesday,

May 16th..Last lecture of Correspondence Courses
in Mining Engineering leaves the In-
stitute.

Monday,

May 22nd..Special day course for Mining Students
begins.

Friday,

May 31st..Regular classes end.

Friday,

June 16th..Special day course for Mining Students
ends.

REGULAR DAY COURSES

	Page
Electrical Engineering.....	8 months.... 29
Steam Engineering.....	8 months.... 33
Tractor Engineering.....	8 months.... 17
Motor Mechanics.....	8 months.... 24
Battery and Ignition.....	8 months.... 37
Architectural Drafting.....	8 months.... 45
Mechanical Drafting.....	8 months.... 44
Railway Drafting.....	8 months.... 44

Three Special Tractor Courses:

- | | |
|------------------------------------|-----------------|
| (a) From Nov. 21 to Dec. 22, 1921. | 5 weeks 22 |
| (b) From Jan. 10 to Feb. 10, 1922. | 5 weeks 22 |
| (c) From Feb. 14 to Mar. 17, 1922. | 5 weeks 22 |

Full time or special courses will be organized in any of the following subjects, provided there is a sufficient enrolment:

Art Work.....	8 months
Motion Picture Operation.....	6 months
Oxy-Acetylene Welding.....	2 months
Manual Training for Teachers.....	8 months
Machine Shop Practice.....	8 months
Vulcanizing.....	6 months
Farm Machinery (Short Special)	3 weeks

CORRESPONDENCE COURSES

Mining Engineering, 1st Class.....	36 weeks 50
2nd Class.....	36 weeks 51
3rd Class.....	24 weeks 51
—	
Steam Engineering, 1st Class.....	6 months.... 52
2nd Class.....	6 months.... 52
3rd Class.....	6 months.... 53

EVENING CLASSES

	Page
Electrical Engineering.....15 weeks	58
Armature Winding..... 6 months....	58
Steam Engineering.....15 weeks	33
Machine Shop Practice..... 6 months....	56
Tractor Shop Practice.....15 weeks	23
Motor Mechanics.....15 weeks	56
Ignition..... 6 months....	37
Drafting { Mechanical..... 6 months....	54
{ Architectural..... 6 months....	54
{ Railway.....6 months....	54
Telegraphy..... 6 months....	56
Shop Mathematics..... 6 months	

FEES

Regular courses.....	\$10.00 per school year
Short or Special courses (less than 3 months).....	5.00 per term
Evening classes.....	5.00 per course
Correspondence courses:	
1st Class.....	25.00 per course
2nd Class.....	15.00 per course
3rd Class.....	10.00 per course

DEPOSITS

A deposit of \$5.00 will be required from all students to cover loss or breakage of equipment. This deposit permits the use by the student of Tools, Drawing Instruments, Laboratory Equipment, etc., belonging to the Institute. The deposit (less deductions) will be returned on completion of the course.

CERTIFICATES AND DIPLOMAS

The Institute will issue Certificates of Proficiency to all students who have completed satisfactorily any Unit or Short Courses.

Diplomas will be issued to students who complete a regular course (including all subjects specified for same) and who pass the examinations of the term.

HOURS AND TERM

The regular work of the term will start on Tuesday, October 4, 1921, and will end May 31, 1922.

The daily sessions of the Institute are held between the hours of 9:00 a.m. and 4:30 p.m. An intermission for Lunch is allowed from 12:00 noon to 1:30 p.m.

Evening classes are conducted from 7:30 to 9:30 p.m. No regular classes are held on Saturdays.

PRESENT LOCATION OF INSTITUTE

The work of the Provincial Institute of Technology and Art is carried on at present in the Colonel Walker School located on 9th Avenue East between 19th and 20th Streets, East Calgary.

DISTRIBUTION OF A STUDENT'S TIME

The school day is six hours and a minimum of three hours each day at shop work is required of each student. This shop period is given up entirely to practical work. The remainder of the day is devoted to science, theory and academic work and it is under these headings that the laboratory work is carried on. The following is a typical weekly time-table of a student taking Electrical work:

	9:00-10:30	10:35-12:00	1:30-3:00	3:05-4:30	7:30-9:30
Monday...	Shop	Shop	Theory	Mathematics	
Tuesday...	Shop	Shop	Chemistry	Drawing	Machine Shop (Optional)
Wednesday	Shop	Shop	Theory	Mathematics	
Thursday..	Shop	Shop	Chemistry	Drawing	Machine Shop (Optional)
Friday	Shop	Shop	Theory	Mathematics	
Saturday ..	Visit to Industrial Plant once or twice per month.				

TRACTOR ENGINEERING

About twelve or fourteen years ago power farming on a commercial scale was introduced upon the farms of the Canadian West. The demand was created by the rapid settling up of a country largely devoted to ranching and by the wish to change to grain farming. This meant that large areas of prairie sod had to be broken. For this purpose the gas tractor was designed and put on the market. In a few years this condition again changed and the tractor is at present used for all classes of farm work. This has created a need among the owners and operators for a more thorough understanding of the principles of the internal combustion engine and for a knowledge of mechanics as applied to the operation and care of the modern tractor and gas engine.

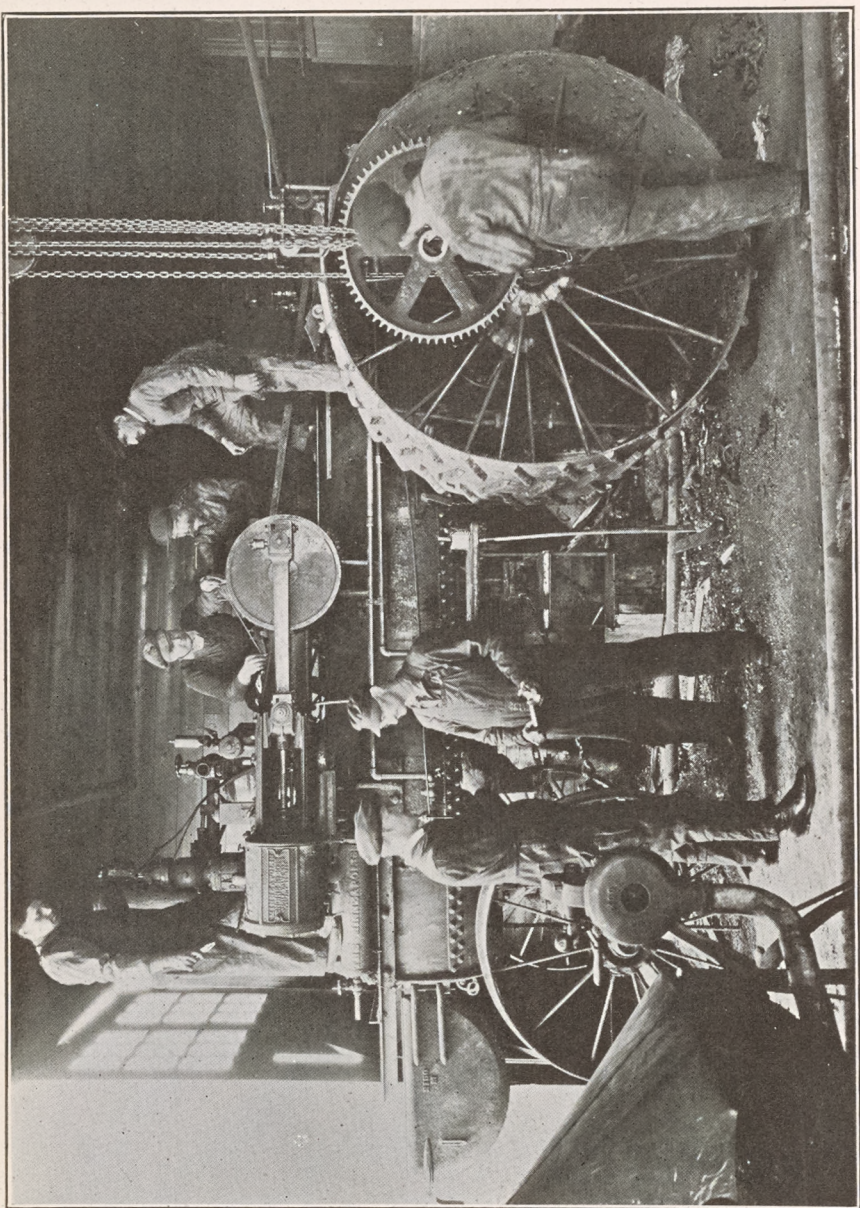
It is the purpose of the Institute to meet this demand by providing courses which will prepare owners and operators to intelligently operate and repair farm power machinery.

Enrolment, 1920-1921

Regular Course.....	25
Special Course.....	59
<hr/>	
Total.....	84

Text: "Gas Engine Repair and Installation," by Rathbun.

Special notes prepared by Institute.



A STEAM TRACTOR UNDER REPAIR

REGULAR TRACTOR ENGINEERING COURSE

Length of Course, 8 months.

GAS ENGINE AND TRACTOR THEORY.—Difference between internal and external combustion engines. Internal combustion engines, various types, function of various parts. Radiation, various methods of cooling. Lubrication, importance of, different systems, etc. Governors, various methods of governing, care and adjustment of different types of governors. Carburetion, fuels such as gas, gasoline, coal oil, distillate, etc. Importance of proper mixture, injurious effects of wrong mixture; underlying principles, general types of; care and repair of particular units, clutches, cone-friction, shoe friction and friction band; their care and adjustment. Transmission, its function, general care, various types; replacement of worn parts, etc., types of axle, tractor cleats. Caterpillar lugs, etc.

Steering Devices—Roller and chain, Ackerman types; rack and pinion or worm; single wheel, automatic, etc. Hitches, methods used for plows and other tractor-drawn machinery. General care of the tractor and stationary engine; timing valves, ignition, etc., locating trouble, wiring and care of batteries.

BATTERIES AND BATTERY IGNITION.—Electrical definitions. Connections. Ignition systems. Timers. Spark plugs. Master Vibrators. Spark advance and retard. Automatic spark advance.

MAGNETOS AND MAGNETO IGNITION.—Magnetism. Mechanical generation of current. Types of magnetos and systems of ignition. General suggestions on magnetos. Common magneto. Ignition definitions.

MATHEMATICS.—Reviewing fundamental rules of Arithmetic; fractions, decimals, percentage, square and cube roots and mensuration. Reading the scale; estimating clearance, use of micrometer, calipers, etc.

PHYSICS.—Properties of matter, Mechanics of Solids, Levers, Machines, Friction, Velocity, Acceleration, Energy, Work, Power, Specific Gravity.

CHEMISTRY.—Elements, compounds and mixtures, Physical and Chemical change. Composition of Atmosphere, Oxygen and Oxides. Acids, bases and salts. Hydrogen, reduction of oxides. Metallurgy of common metals, etc.

DRAFTING.—A short course covering the elementary principles of mechanical drafting, shop sketches, etc., sufficient to enable the student to read blue prints and diagrams sent out by tractor and gas engine manufacturers.

BLACKSMITHING.—How to erect a forge, and make a blacksmith's fire properly; how to make necessary blacksmith's tools; various heats, tempering, etc., different stocks; drawing out metal; welding; plow share sharpening followed by a series of exercises in link and clevis making; simple ironing work; brackets; harrow teeth sharpening, etc.

SHOP WORK.—Use of hand tools, followed by a series of exercises in chipping, filing, scraping, grooving, etc., dis-assembling, cleaning and assembling engines, grinding valves, fitting bearings, timing gears, overhauling motors, rebuilding farm engines and tractors, soldering and brazing, pipe fitting, repairing.

TRACTOR OPERATION.—Actual ploughing operations on different types of soil with various kinds of plows and various types of tractors. This part of the course to be substituted for two weeks of the regular course, at such time as climatic conditions permit.

STEAM TRACTORS (Optional).—This optional course is offered to students who have had one season's experience as firemen on a steam tractor. This short course in steam tractor work is intended to prepare the student for the Provincial Examination. The course may be substituted for two months of the regular gas engine and tractor course.

Boiler construction as regards tractors; fusible plugs, stays, studs, tubes and brackets, steam pipes and repairs necessary to same. Washing boilers and feed water problems. Firing, different fuels, lignite and bituminous coal; wood and straw burners; reverse gears and valve motions; valve setting and lubrication, steering and hitching, steam tractor operation, etc. The theory will be combined with the shop work and be given individually in the shop.

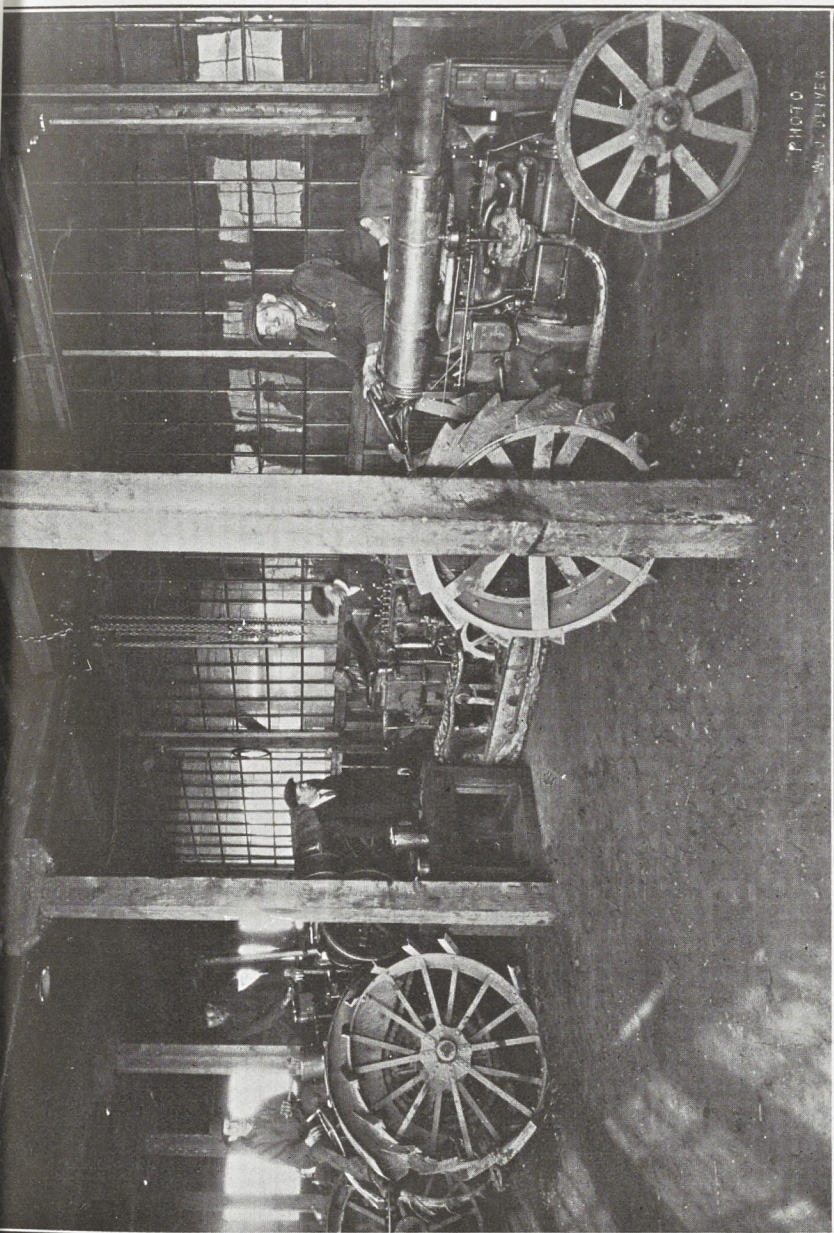


PHOTO
W. S. OLIVER

TRACTOR ENGINEERING SHOP

SPECIAL TRACTOR COURSES

Length of Course, 5 weeks.

The number of students admitted to one of these courses is limited to 40.

The work outlined below is intended to make a student familiar with all the common types of modern farm gas engines and tractors. In the limited time available, it is impossible to make expert gas engine repair men, but each man is trained to the point where he thoroughly understands the operation of this type of machinery and becomes fairly proficient in locating and remedying common troubles.

The course will be as follows:

(a) Half of each day is devoted to lectures and demonstrations on the following subjects:

Difference between internal and external combustion engines. Internal combustion engines, various types, functions of various parts. Radiation, various methods of cooling. Lubrication, importance of, different systems, etc. Governors, various methods of governing, care and adjustment of different types of governors. Carburetion, various fuels as gas, gasoline, coal oil, distillate, etc., importance of proper mixtures; injurious effects of wrong mixtures; underlying principles, general types; care and repair of particular units, clutches, cone friction, shoe friction and friction band; their care and adjustment. Transmission, its function; general care; various types of; replacement of worn parts, etc.; types of axles; tractor cleats, caterpillar lugs, etc.

Steering Devices: Roller and chain, Ackerman types; rack and pinion or worm; single wheel; automatic, etc. Hitches; methods used for plows and other tractor-drawn machinery. General care of the tractor and stationary engines; timing valves.

Ignition, etc.: Locating troubles, wiring and care of batteries, levers, pulleys, plows and plowing, belt lacing, care and adjustment of farm machinery.

(b) The remainder of each day will be devoted entirely to practical work including:

Starting, steering, use of clutch and brake. Lining up with separator for threshing or other work; how to operate in close quarters; hill climbing; different drawbar hitches for plowing, cultivating, seeding, etc.; assembling and dismantling tractors.

EQUIPMENT

- 1 Case Tractor 15-27.
- 1 Sawyer-Massey Steamer.
- 1 Titan Tractor.
- 1 Waterloo Boy Tractor.
- 1 Sawyer-Massey Tractor.
- 1 Cleveland Tractor.
- 1 Fordson Tractor.
- 1 Goold-Shapley "Ideal" Tractor.
- 6 Stationary engines.

Various sectionalized cylinders, carburettors, parts,
etc.

MOTOR MECHANICS

The automobile industry although only some twenty years of age, has grown so rapidly that it now occupies third place among the industries of the world and each year highly trained mechanics specializing on each part turn out millions of motor vehicles to all appearances models of mechanical perfection.

These trucks and cars are distributed to and sold in all parts of the country and are used extensively for business and pleasure, filling a long-felt want. In fact, they are indispensable. Although apparently so perfect when new, they very rapidly depreciate if not given proper care by owners and service mechanics.

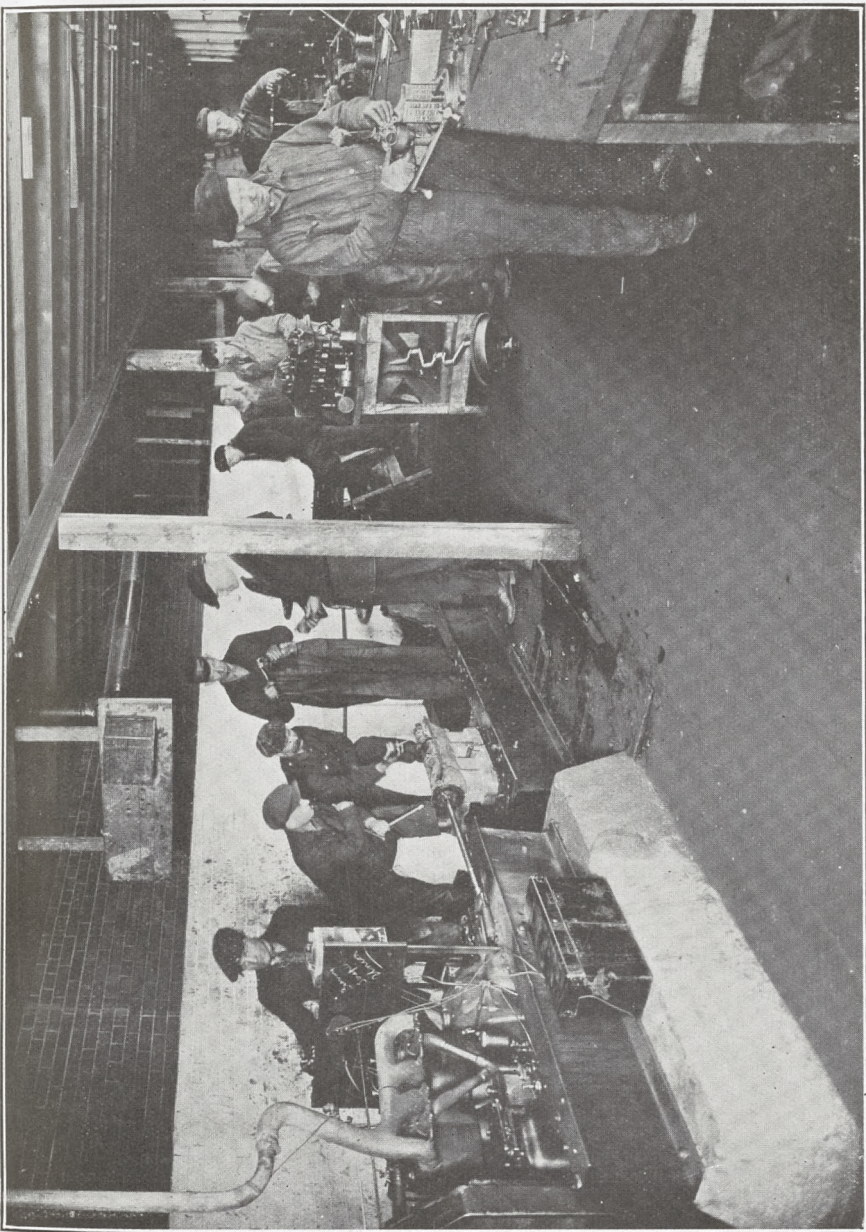
For this reason it is necessary to study carefully the principles on which they operate, the different parts, their function and relation to each other, so that their term of efficient service may be lengthened and adjustments and repairs correctly made.

Considering the number of motor vehicles in operation and their rapid increase, the field for the trained motor mechanic could not be better than it is today.

Enrolment, 1920-1921

Regular Course.....	32
Part time Course.....	4
Total.....	<hr/> 36

Text: "Gasoline Automobile," by Hobbs, Elliott and Consoliver.



REGULAR MOTOR MECHANICS COURSE

Length of Course, 8 months.

ENGINE THEORY (Lectures and Demonstrations):—

General Construction: Types of cars, chassis, frame, springs, steering gear, axles, differential, power plant and transmission, torque arm, strut rods, brakes, wheels, tires, rims, speedometer, drive, control system.

Engines: Explosions, cycles, valves, two and four-stroke engines, fly-wheel, ignition, clearance and compression, piston cooling, cylinder cooling, muffler, horse power.

Power Plant Groups and Transmission Systems: Single and multi-cylinder engines, power plant and transmission arrangements, clutches, change-gear sets, planetary gearing, universal joints and drive shaft, final drive, types of live rear axles.

Fuels and Carburetting Systems: Hydrocarbon, oils, gasoline, gas and air mixtures. Principles of carburetion, construction, types of carburetors, carburetor adjusting and control, gravity, pressure, and vacuum feed systems, intake manifolds, care of gasoline.

Lubrication and Cooling: Friction and lubricants, cylinder oils, system of engine lubrication, systems for cooling.

IGNITION.—*Batteries and Battery Ignition:* Electrical definitions, connections, ignition systems, timers, spark plugs, master vibrators, spark advance and retard, automatic spark advance.

Magneto and Magneto Ignition: Magnetism, mechanical generators of current, types of magnetos and systems of ignition, general suggestion on magnetos, common magneto ignition definitions.

Starting and Lighting Systems: Types of starters, wiring systems, types of starting and lighting systems, care of starting and lighting apparatus. Troubles: Starting motor, generator and battery, winter care of batteries.

MATHEMATICS.—Reviewing fundamental rules of Arithmetic, fractions, decimals, percentage, square and cube roots and mensuration. Reading the scale, estimating clearance, use of micrometer, calipers, etc.

DRAFTING.—Elementary principles of mechanical drawing, enabling a student to read blue prints, also to acquire sufficient skill in the use of the instruments and in freehand drawing to make near shop sketches and read and understand wiring diagrams.

CHEMISTRY.—Elements, compounds and mixtures; physical and chemical change; composition of the atmosphere; oxygen and oxides; acids, bases and salts; hydrogen, reduction of oxides; composition of water; electrolysis and electroplating; chemistry of primary and storage cells; metallurgy of common metals, etc.

PHYSICS.—Properties of matter, mechanics of solids, machines, friction, velocity, acceleration, energy, work, power, elements of wave theory as applied to heat, sound, light and electricity.

SHOP WORK

Garage.—Re-building used cars and completely overhauling cars in bad running order. Regular service station garage work. Practice on “Burning in” and “Running in” engines.

Battery Shop.—Practice in repairing and re-building various types of car batteries. Battery charging, testing.

MACHINE SHOP

Working knowledge of lathe, including screw cutting; fair working knowledge of shapers, drill press and common tools and the making of less complicated parts for repair work in the garage.

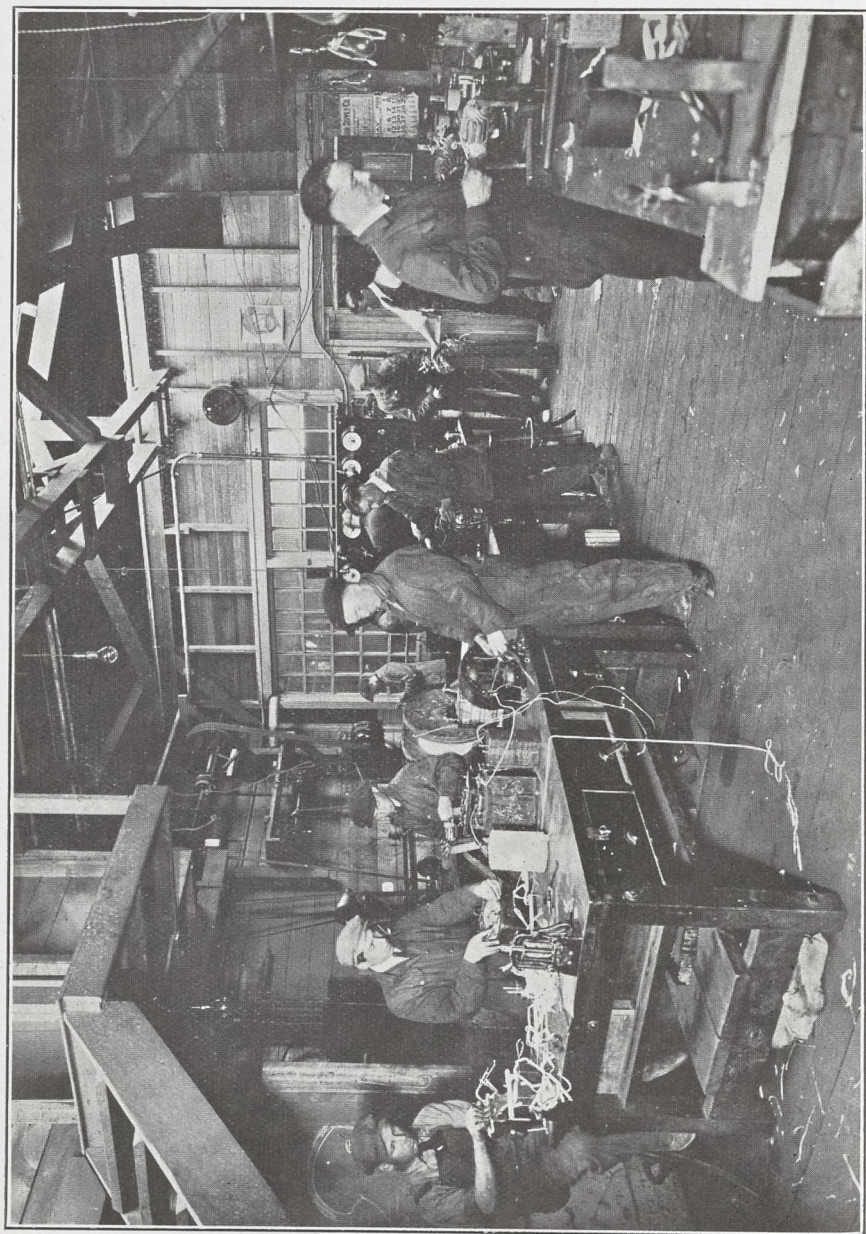
EQUIPMENT

- 1 MacLaughlin six.
- 1 Chevrolet No. 490.
- 1 Ford car.
- 1 Ford Truck.
- 1 “Burning in stand,” benches, stands, air pump.

Sectionalized Engines and Parts

- 1 Complete Ford car.
- 1 Buick engine.
- 1 Knight sleeve valve engine.
- 1 Cadillac “8”.
- 1 Pope-Toledo.
- 1 Overland.

Differential gears, water pumps, 5 carburettors, steering gear.



SHOP FOR APPLIED ELECTRICITY—ARMATURE WINDING

ELECTRICAL ENGINEERING COURSE

The possibilities of the future for a young man entering the electrical field are almost unlimited. The applications and uses of electricity are increasing daily and public and private corporations are yearly investing large sums of money in developing and harnessing the enormous amount of water-power which is available in this country. These corporations require the services of competent electrical engineers and electricians to instal their plants and to keep them in operation after they are installed.

The time is not far distant when our railways will be electrified and this change will bring good openings for a great many electrical men, who know their business.

Today there is a growing demand for the man who can successfully carry out repairs in the various types of electrical apparatus, such as the re-winding of direct-current and alternating-current motors and generators and the re-building of transformers, batteries, etc.

There is an excellent future for the young man who is not afraid of hard study and work.

Enrolment, 1920-1921

Regular Course.....	19
Part time.....	3
Total.....	<hr/> 22

Text: "Elements of Electricity," by W. H. Timbie.

REGULAR ELECTRICAL ENGINEERING COURSE

Length of Course, 8 months.

SHOP WORK

Joints in large, small and stranded conductors. Soldering and insulating joints; conduit work; cutting and threading pipe; bends and offsets, fishing in wire; general power wiring, power meter loops; installation of motors and dynamos; construction and operation of controllers and rheostats; winding and insulating of magnets and coils. D. C. switchboard and panel work, D. C. and A. C. Armature winding.

Winding transformers; transformer connections; starting and controlling devices for A.C. motors and A.C. switchboards; parallel operation of A.C. generators; methods of synchronizing rotary converters and synchronous motors; use of and calibration of electrical instruments such as: Ammeter, voltmeter, wattmeter, megger, synchroscope.

Machine Shop Work.—Lathe work, screw cutting; turning or truing commutators; use of drills, how to set up work on machine.

ELECTRICAL THEORY.—Lectures on fundamental principles of electricity and magnetism; study of magnets, magnetic fields and circuits; electro-magnets; application of Ohm's Law; power measurements; electrical instruments; permeability, hysteresis and eddy currents; condensers; capacity of cables; power factor; Generators: A.C. and D.C. motors, A.C. and D.C. transformers and connections; batteries; measuring instruments and their circuits.

MATHEMATICS.—Fractions, vulgar and decimal; ratio and proportion; elementary algebra as required for formulae; areas and volumes of common solids; square root problems involving work, horse power, electrical units; voltage drop; power factor.

DRAWING.—Use of instruments; geometrical drawing and simple problems; conventional signs and lettering; electrical diagrams and blue prints; diagrams of wiring from actual machines and circuits.

PHYSICS.—Properties of matter; mechanics of solids; machines; friction; velocity; acceleration; energy; work; power; elements of theory as applied to heat, sound, light and electricity.

CHEMISTRY.—Elements, compounds and mixtures; physical and chemical change; composition of the atmosphere; oxygen and oxides; acids, bases and salts; hydrogen reduction of oxides; composition of water; electrolysis and electroplating; metallurgy of common metals.

READING.—A thorough study of the Underwriters' Rules and wiring laws.

EQUIPMENT

Lathe, grinder, drill, prony brake, variable speed testing machine, one D.C. testing panel, one A.C. testing panel, six transformers and 2200 volt oil switch, A.C. motors, D.C. motors, motor-generator set for charging. Voltmeters, ammeters, millivolt-meters, milliammeters, wattmeters, rheostats, instrument transformers, etc.

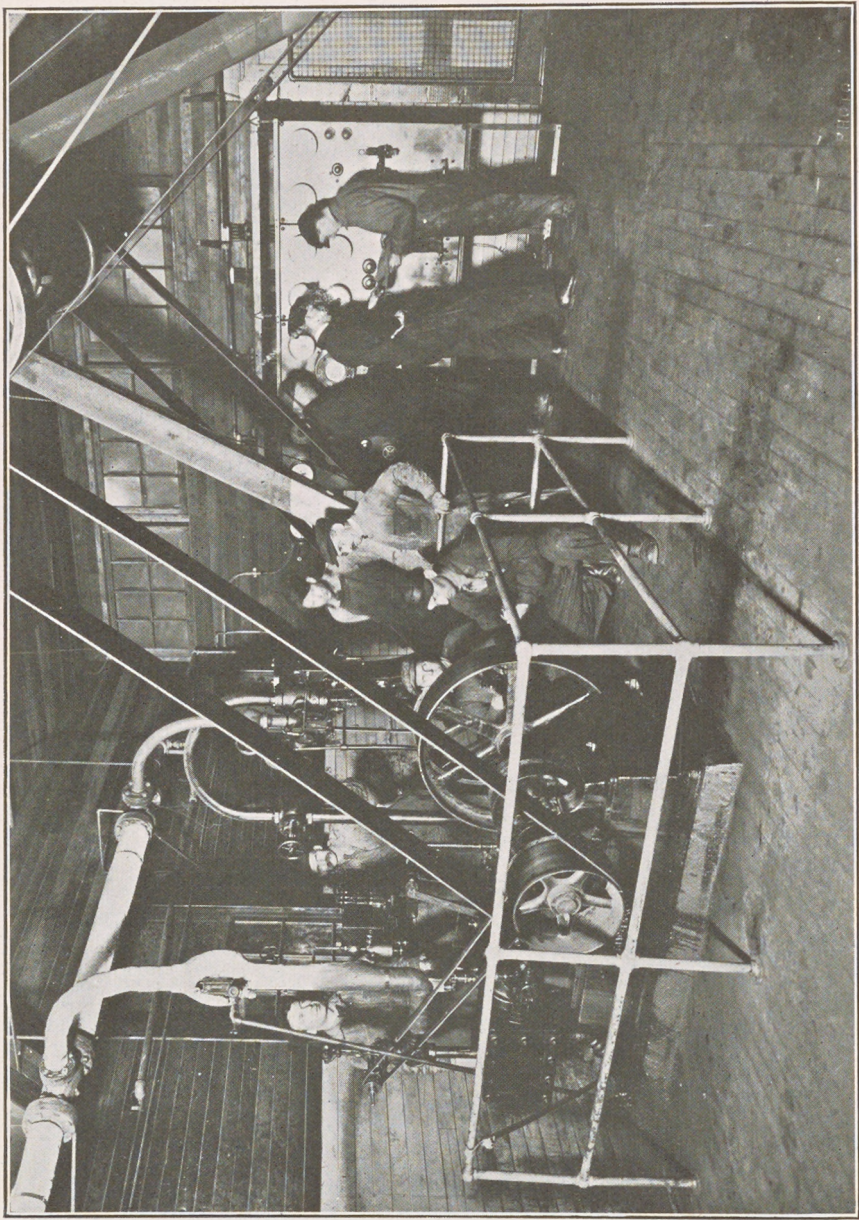
Power Plant Room:

2 Three-phase alternators direct connected to exciters.

1 Single-phase alternator.

2 D. C. generators.

1 Switchboard (4 panel) controlling A. C. current, complete with voltmeters, ammeters, wattmeters, synchroscope, power factor meter and frequency meter.



MEN FROM POWER PLANTS AT WORK IN THE STEAM ENGINEERING LABORATORY

STEAM ENGINEERING

The profession of steam engineering offers greater opportunities today to the youth with an inclination for mechanics than it ever did. The scope of the trained technical engineer is world-wide and the demand for his services is increasing steadily.

The greatest manufacturing districts in the world are situated in the vicinity of the largest coalfields.

In this Province due to the vast supply of coal and the growing population the production of power for manufacturing purposes will steadily increase and enlarge the field of the steam engineer.

With the opportunity now open to him of receiving a good technical training at the Provincial Institute of Technology and Art, the student who takes up this interesting profession as his life's work with the determination to succeed cannot fail to secure for himself a position of honour among his fellow citizens.

Enrolment, 1920-1921

Regular Course.....	13
Part Time Course.....	7
	<hr/>
Total.....	20

Text: Instructor's notes.

REGULAR STEAM ENGINEERING COURSE

Length of Course, 8 months.

SHOP WORK

Practice in making fires: Raising and lowering heat, removing clinker, banking, etc. Use of several grades of coal and natural gas. Filling and cleaning of boiler, use of scale-reducing devices. Control of feed water; mechanical stokers; natural and artificial draft.

Care and Operation: Observance of local regulations; keeping of records and supplies—importance, system and tidiness.

Engines. Practice in simple bench work—including use of machinists' hand tools; study of names and functions of various parts of the steam engine; its principle of operation; practice in adjustment and repair of various types of engines owned or in for repair with special emphasis in such operations, as valve setting, bearing adjustment, engine bases, pulley alignment, lubrication; flue gas analysis, etc.; practice in control of steam engines; importance of draining and warming cylinders.

Electrical Equipment: Practice in operating and caring for D.C. and A.C. generators—synchronizing, reading of various switchboard instruments.

STEAM ENGINEERING THEORY (Lectures and Demonstration):

Types of Boilers: Water Tube, Horizontal Return Tubular, Locomotive, Marine, Portable.

Boiler Construction: Riveted Joints, Stays, Fireboxes, Tubes, Fittings.

Boiler Erection: Hangers, Brackets, Columns, Brickwork, Back Arch, Combustion Chamber, Bridge Wall.

Boiler Calculations: Strength of Riveted Joints, Stays, Safety Valves, Working Pressure.

Firing: Combustion, Flue Gases, Hand Firing, Automatic Stokers, Induced and Forced Draught.

Boiler Operation: Cleaning, Inspection, Corrosion, Pitting, Feed Water Treatment, Feed Piping, Heaters.

Injectors and Feed Pumps: Principles of the Injector and Pump, Construction, Lift, Head, Valve, Motions.

Pump Calculations: Mensuration, Sizes and Capacities of Pumps, Water and Steam Ends, Friction, Slip.

Piping: Erection, Sizes, Hangers, Expansion Bends and Joints, Separators, Drainage, Covering.

Simple Steam Engine: Principles of the Simple Steam Engine, Details of Construction and Operation.

Hoisting Engines: Direct and Second Motion, Drums, Brakes, Throttle Valves, Reversing Gear.

Corliss Engines: Principle, Construction, Operation, Valve Motion.

Turbines: High Pressure and Exhaust Steam Turbines, Impulse and Reaction, Details of various types.

Condensers: Surface Jet and Barometric, Air Pumps, Circulating Pumps, Cooling Ponds and Towers.

Engine Erection and Operation: Foundations, Overhauling, Clearance, Taking up Wear, Re-boring Cylinders.

Indicators: Description of the Indicator, Method of taking Cards, Reading Cards, M. E. P.

Valve Setting: Setting the Simple Slide Valve, Corliss Valves, Pump Valves, Reversing Motions.

Refrigeration: Principles of Refrigeration, Systems in use, Details of Construction, Operation.

Air Compressors: Principles of Air Compression, Single Stage, Cooling and Lubrication.

Locomotives: Details of Construction, Operation, Lining-up, General Repairs.

Horse Power Calculations: Indicated and Brake Horse Power, Engine and Pump Calculations.

Power Plant Accessories: Reducing Valves, Steam Traps, Regulators, Automatic Stop Valves, etc.

PHYSICS.—Levers, Heat, its effect on solids, liquids and gases; thermometer; steam pressure; atmospheric pressure; conduction, convection and radiation of heat.

CHEMISTRY.—Physical and chemical change—composition of the atmosphere; composition of water; scale-forming chemicals and their solvents; combustion; carbon and hydrocarbons with reference to coal and gas.

ELECTRICAL THEORY.—Electrical energy—Ohm's Law; magnetism and its relation to electrical energy; D.C. and A.C. motors and generators, and their control; electrical instruments, their care and use; overloading; short circuiting; safety devices.

ENGLISH.—Neat and legible writing so as to be able to log-sheet, write a business letter, etc.; the meaning and proper use of various words and terms peculiar to the trade.

DRAFTING.—Use of instruments; practice in the elementary stages of Mechanical Drafting, so as to be able to make neat sketches and also read and understand blue prints.

ARITHMETIC.—Review of elementary operations when necessary, common fractions and decimals—common weights and measures; application to measurement of sizes and quantities of general engineers' supplies, fuel consumption, etc.; measurement of area of rectangle and cylinder to estimate horse power of engine, boiler, etc.

EQUIPMENT

The equipment in this department is as follows:

2 Locomotive type boilers with necessary pumps.

1 Webster water heater, Hay's flue gas analyzer, pyrometer, draft gauge.

1 Horizontal throttle-governed engine.

1 Vertical shaft-governed engine.

1 Steam engine indicator, Planimeter, Steam gauge tester.

These engines are belted to A. C. and D. C. generators.

REGULAR BATTERY AND IGNITION COURSE

(Electricity as applied to the Automotor Industry)

Length of Course, 8 months.

Anyone who has had any experience in the operation or repair of an automobile or tractor will readily recognize the importance of this course. It is a fact that there is no field where applied technical training is of more value.

During the past ten years almost every electrical principle has been applied to one or other of the various systems of electrical equipment for cars or tractors.

The aim of this course is to teach the principles of electricity and magnetism and at the same time to train the student in the practical application of each as he progresses.

Proficiency in this work is carried beyond the care and operation of the electrical equipment of a car or tractor. A thorough course is given, including a knowledge of Chemistry and Physics which is essential to a proper understanding of the storage battery.

SHOP WORK

Battery Shop: All the necessary processes used in repairing old cells and building new ones; battery charging, testing, moulding of straps, posts, etc.; making battery boxes.

Ignition Shop: Repair, testing, wiring and care of various types of induction coils, magnetos, cutouts, motors, generators, etc.; timing of engines, various methods of testing; magnet re-energizing; coil winding, etc.

Electricity (Lectures and Demonstration): Elements of magnetism, Electrical Terms, Conductors, Insulators, Ohm's Law, Parallel and Series connections, Induction, Alternating currents, Magnetos, D.C. Generators, D.C. Motors, Electrostatics, Condensers, Primary cells, Storage cells (Composition, Structure, Electrolyte, Testing, etc.), Low Tension Coils and Ignition, High Tension Coils and Ignition, Modern Battery Ignition, Magneto Ignition (Dual and Special), Armatures, Fields, Voltage Regulating, Automatic Cutouts, Rectifiers, Farm Lighting Plants, etc.

CHEMISTRY.—Elements, compounds and mixtures; physical and chemical change; composition of the atmosphere; oxygen and oxides; acids, bases and salts; hydrogen, reduction of oxides; composition of water; electrolysis and electroplating; chemistry of primary and storage cells; metallurgy of common metals, etc.

PHYSICS.—Properties of matter; mechanics of solids; machines; friction; velocity; acceleration; energy; work; power; elements of wave heat theory as applied to sound, light and electricity, etc.

MATHEMATICS.—Fractions, vulgar and decimal; ratio and proportion; elementary algebra as required for Formulae; areas and volumes of common solids; square root problems involving work, horse power, electrical units; voltage drop, power factor, etc.

DRAWING.—Use of instruments; geometrical drawing and simple problems; conventional signs and lettering; electrical diagrams and blue prints; construction of wiring diagrams from actual cars and circuits.

ENGLISH.—Neat and legible writing; practice in writing business letters, keeping time cards, simple accounts, etc.; the meaning and proper use of words and terms peculiar to the trade.

EQUIPMENT

1 7½ Kw. Motor Generator set.

1 50 Amp. Mercury Arc Rectifier.

1 Low voltage charging set.

Strap and post moulds.

Oxygen and gas burning outfit.

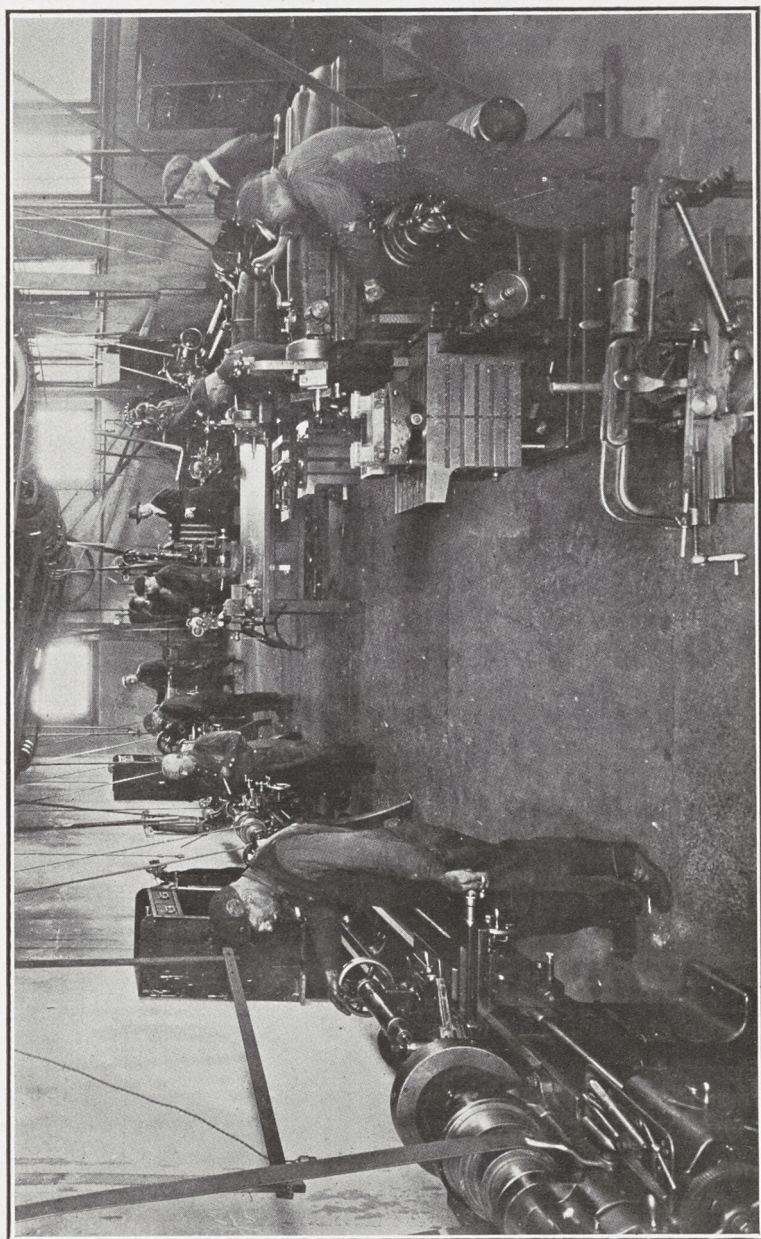
Electrical transformer for burning.

1 Cadmium tester.

1 "Ambu" trouble-finder.

6 Starting and lighting units.

Lathe, grinder, tools, etc.



CLASS AT WORK IN MACHINE SHOP

COURSE IN MACHINE SHOP PRACTICE

Length of Course, 8 months.

This course is designed for students who intend taking up work in a Railway or Machine Shop.

SHOP WORK.

Practice in the care and operation of the following machines:

Lathe: How to find and take care of tools, cutters, etc., screw cutting, square and V-threads, tapering, boring, interchanging of gears, speed and feeds for different classes of work, centering, instruction in shrinking, driving and working fit, use of inside and outside calipers.

Drilling Machine: Grinding of drills, speed of drills for different classes of work, setting up of work on machine.

Shaper: Instruction on setting up of work; using square and surface gauge; cutting of key seats, etc.

Milling Machine: Instruction in cutting various kinds of gears, pinions, etc.

Hand Tools: How to manipulate the various hand tools, instruction in the use of the micrometer, inside and outside calipers, surface gauge, steel rule and square.

Blacksmithing Shop: Instruction in the tempering and repairing of drills, chisels, cutters, etc.

MATHEMATICS.—Reviewing fundamental rules of arithmetic, fractions, decimals, percentage, square and cube roots and mensuration; reading the scale, estimating clearance, use of micrometer, calipers, etc.

DRAFTING.—Sufficient proficiency to be acquired in order to grasp the elementary conceptions of mechanical drawing; to be able to read shop drawings, make neat sketches to scale for shop use and read and understand blue prints.

ENGLISH.—Neat and legible writing; practice in writing business letters, keeping time cards, simple accounts, etc.; the meaning and proper use of words and terms peculiar to the trades.

APPLIED MECHANICS.—Properties of matter; mechanics of solids; levers; machines; friction; velocity; acceleration; energy; work; power; specific gravity.

CHEMISTRY.—Elements, compounds and mixtures, physical and chemical change; composition of atmosphere; oxygen and oxides; acids, bases and salts; hydrogen, reduction of oxides; metallurgy of common metals, etc.

Enrolment, 1920-1921

Evening Classes.....21

EQUIPMENT

9 Screw-cutting lathes varying in size up to a 24-in. gap.

1 Cincinnati Milling machine.

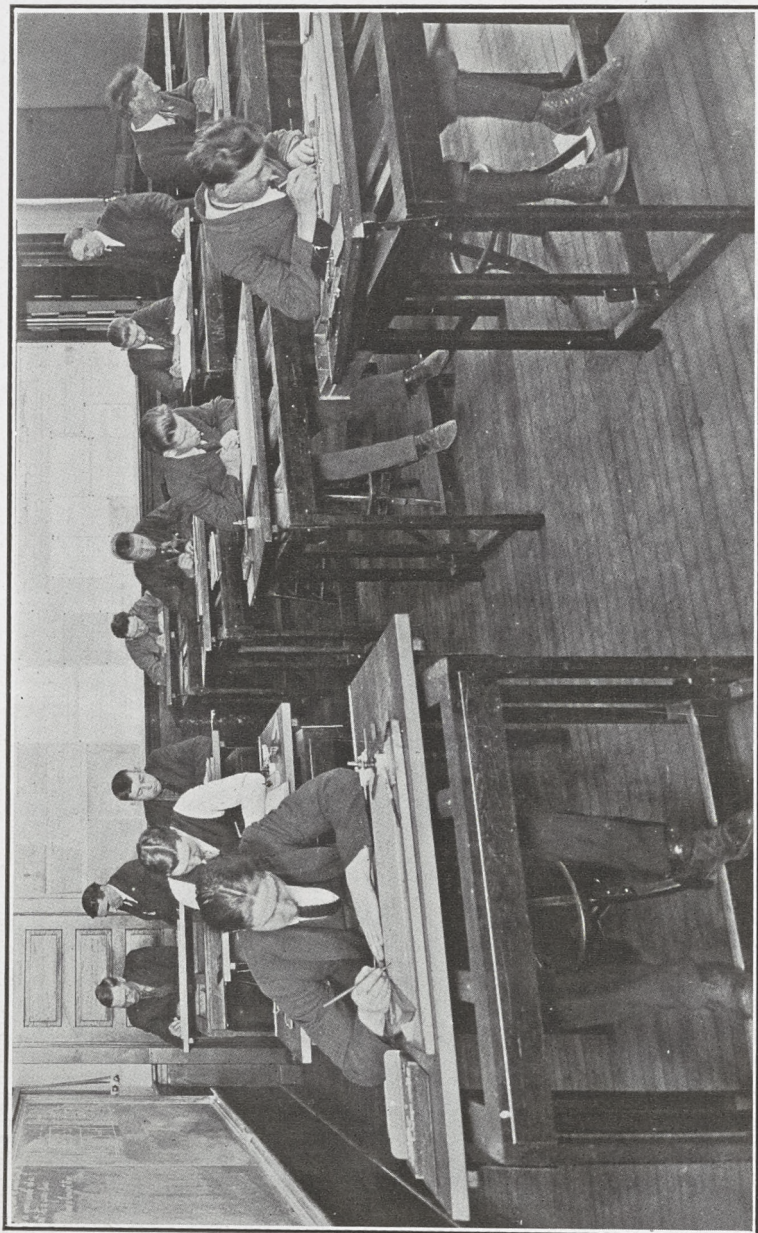
2 Shapers.

2 Power drills.

1 Power grinder.

1 Power hacksaw.

And all necessary tools and measuring instruments.



CLASS IN THE DRAFTING ROOM

REGULAR DRAFTING COURSES

Length of Course, 8 months.

Three separate courses are offered in this department, Mechanical, Railway and Architectural Drafting. While these are planned as complete one year courses it is the intention to add a second year for those who complete this work and wish to make a special study in one of these fields.

The Mechanical Drafting course deals primarily with machine drawing and will be found very helpful to any one specializing in a mechanical trade or industry, as well as to the man who intends to become a Mechanical Draftsman. The second year's work will deal chiefly or primarily with machine design and construction.

The Railway Drafting course is planned especially for the young man who wishes to prepare himself to do drafting in connection with railway survey or irrigation work. While this is a draftsman's course it is a preparatory course for Railway Engineering work.

The Architectural Drafting course should appeal to the progressive builder or contractor as well as to the man who wishes to prepare himself for work as an Architectural Draftsman. This work is also preparatory to further work in Architecture.

General Subjects for all Drafting Students

DRAFTING.—This is a general elementary course in drafting required of all drafting students.

Freehand lettering including the use of special lettering pens, composition, showing uses of capital, lower case letters with good arrangement and spacing.

Freehand drawing of simple models, perspective sketching and the making of freehand working sketches.

Geometric drawing, including plane figures, angles, polygons, tangents, ellipse, spiral, helix.

Orthographic and isometric projection, simple development of surfaces, intersection of solids and development of intersecting

surfaces. Principles of mechanical perspective and applications to practical work.

Use and care of drafting instruments. Conventions used in working drawings, construction of simple scales and drawing to scale.

Inking, line shading, tinting, tracing and blue printing.

ENGLISH.—Writing of business letters, bids, contracts, specifications and reports; technical spelling; definition of trade terms; practice in making notes from articles in trade and professional literature and writing summaries of same.

MECHANICAL DRAFTING COURSE

(In addition to General Drafting and English.)

MECHANICAL DRAFTING.—Projection, drawing of small machine parts, bolts, and screws, rivets, joints, keys, cams, couplings, bearings, pulleys, cranks, connecting rods, etc. This is followed by gearing and detail assembly drawings of machine parts including more complicated drawings. In the final stages of the course the student is given a series of simple machine parts to design.

MATHEMATICS.—Elementary arithmetic; fractions; mensuration; square root, elementary algebra; plane geometry and geometrical drawing; ratio and proportion; strength of materials; calculations involving stress and strain; quantities; plotting surveys, etc.

APPLIED MECHANICS.—Properties of matter; mechanics of solids; levers; machines; friction; velocity; acceleration; energy; work; power; specific gravity.

CHEMISTRY.—Elements, compounds and mixtures; physical and chemical changes; composition of atmosphere; oxygen and oxides; acids, bases and salts; hydrogen; reduction of oxides; metallurgy of common metals, etc.

MACHINE SHOP.—Working knowledge of lathe, including screw-cutting, working knowledge of shapers, drill press and common tools.

RAILWAY DRAFTING COURSE.

(In addition to General Drafting and English.)

RAILWAY DRAFTING.—Practical work in mapping, based on field notes, working to scale, enlarging and reducing.

Practical work based on field notes, progress and final profiles, making of profiles, earth quantities on the profile, timber quantities on the profile (culverts and bridges); bills of materials.

Railway structures and building construction; roundhouses, station houses, water tanks, pump houses, freight sheds.

Elementary surveying.

MATHEMATICS.—This course follows the mechanical drafting course in mathematics, except strength of materials, etc., which is replaced by trigonometric calculations as applied to railway curves and the elementary principles of surveying.

APPLIED MECHANICS.—Properties of matter; mechanics of solids; levers; machines; friction; velocity; acceleration; energy; work; power; specific gravity.

CHEMISTRY.—Elements, compounds and mixtures; physical and chemical changes; composition of atmosphere; oxygen and oxides; acids, bases and salts; hydrogen; reduction of oxides; metallurgy of common metals, etc.

ARCHITECTURAL DRAFTING COURSE

(In addition to General Drafting and English.)

DRAWING AND DESIGN.—Freehand lettering; freehand drawing of ornament and architectural details from flat, from object and from memory, in line and wash; principles of perspective and drawing of sketches related to building construction; principles of design and application to spacing and proportion; chief styles of architecture, windows, cornices, walls, mouldings, etc.; study of historic ornament.

ARCHITECTURAL DRAFTING.—Symbols used; bonds, brick and stonework; joints used in carpentry and joinery; sections of common trim used; methods of striking arches; details of ordinary house framing: walls, floors, roofs, doors and frames, sashes and frames, common stairs; various mouldings; details of joinery work for better class dwellings; roof trusses; details of fire-resisting and fire-proof buildings; beams, columns, floors, etc.; design for a dwelling house, including half-inch and full size details; perspective drawing of a simple building; tracing and blue-printing.

BUILDING CONSTRUCTION.—Lectures, notes and sketches on foundations, framing, roofs, floors, windows, doors, stairs, trim, brickwork, plastering and painting for common dwellings; centres, forms for concrete work, timbering for excavations and other temporary work; properties and uses of the common building materials; interior fittings for better class dwellings; fire-resisting and fire-proof construction; heating and ventilating construction and principles; plumbing, electric wiring, sheet-metal work; hardware.

APPLIED MECHANICS.—Study of the lever, pulley, wedge, screw and their applications; the composition and resolution of forces; the triangle and parallelogram of forces and their application to simple frame structures; bending moment and shearing force diagrams of beams variously loaded; calculation of the loads that given beams will carry and the sizes of beams for given loads; study the strength of materials from data and formulae contained in handbooks; the graphical determination of forces in common framed girders, roof, trusses and trussed partitions.

ESTIMATING.—Local wages per hour and per day for all trades; prices of materials; weight of materials—cubic contents of given weight and weight of given bulk; amount of work done by one man in one day; amount of work covered by a given amount of material; measurement of work done on a building—plaster, brick, concrete, carpentry, painting, etc.; taking-off and abstracting the simpler quantities from plans and specifications; short methods for approximate estimates; cost of typical buildings by cube, square and unit.

MATHEMATICS.—Arithmetic—review of fundamental operations; decimals, common weights and measures; ratio and proportion; cube root; metric measurements.

MENSURATION.—Area of rectangles, triangle and circle; volume of square prism; measurement of angles; area of polygons, sector, segment and ring; area and volume of prisms, pyramids, cone and frustrums, right-angled triangles and similar triangles.

ALGEBRA.—Elementary operations; simple equations involving one unknown; use of simple formulae; practical problems involving equations.

SHOP WORK.—Practice in taking measurement and making dimensioned sketches of same; use of measuring and setting-out instruments, such as tape, plumb rule, carpenter's level, steel square, beam compass, straight edge, chalk line, etc.; use of builder's level in staking out site and obtaining levels; use of chain and rod.

Knowledge of tools used in building—kinds, construction, care and use; practice in use of wood-working tools and machines; some practice in roof framing and truss construction.

Enrolment, 1920-1921

Regular Courses.....	7
Part time.....	4
Total.....	<hr/> 11

REGULAR ART COURSES

Art courses for Teachers leading to Elementary and Intermediate Art certificates will be offered. In addition to this a general Art course is planned as a preparatory course for students who intend to study to be a Commercial Artist, Illustrator, Decorator or to enter some field of art work.

TEACHERS' COURSE

It is planned to cover the work necessary for the Elementary Art certificate during the first ten weeks of the term, October to December,* and the work leading to the Intermediate certificate begins in January. Teachers holding an Elementary Art Certificate who desire to specialize in Art should enter at this time. The subjects to be taken are:

ART EDUCATION

It includes discussions relating to the teaching of Art in the elementary and high schools, lesson plans and practice teaching, Art history and appreciation, and a consideration of representation, design, harmony and color in relation to various lines of Art Work.

GENERAL ART COURSE

The subjects will include mechanical drawing, drawing and composition, lettering and commercial design, design and handicraft. Special work will be given in the study of perspective and design, and methods of reproducing pictures.

DRAWING AND COMPOSITION

Deals with still life, cast, figure and landscape drawing. Practice will be given in the use of pencil, crayon, charcoal, pen and ink, water-color and other art mediums. Special attention will be given to composition, illustrative drawing and blackboard work.

MECHANICAL DRAWING

This will cover the work as outlined under "General Drafting" with special attention to perspective and the drawing of furnishings and equipment suitable for the drafting and art departments or for the studio.

*Elementary Art courses will be offered as evening class work or by correspondence if there is sufficient demand.

LETTERING AND COMMERCIAL DESIGN

In addition to a careful study of different styles of letters practice will be given in the working out of practical problems such as posters, show cards, book and magazine covers.

DESIGN AND HANDICRAFT

This work will be largely individual with considerable choice as to medium and method of treatment. Design problems to be closely related to Manual Arts and worked out in cardboard, leather, wood, metal or clay and plaster. Stencilling and block printing work to be included.

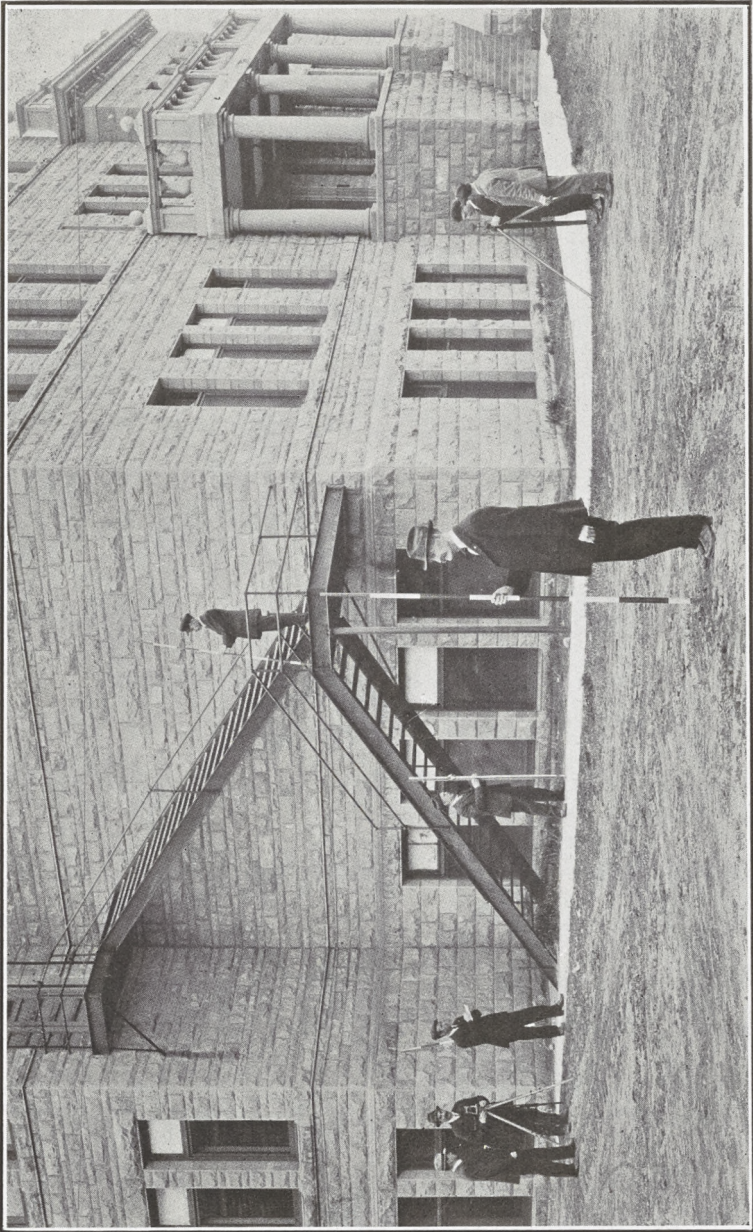
CORRESPONDENCE COURSES

Correspondence Courses in Steam Engineering and in Mining have been arranged by the Institute; these courses are primarily designed for men who purpose taking the examination for Certificates of Competency under The Boiler's or Mines Acts of Alberta and who find it either inconvenient or impossible to attend an institution of learning offering instruction in these subjects.

The arrangement of work and the ground covered by these courses are such as to greatly assist the student, who when working alone may waste valuable time on a number of non-essential subjects and may overlook much that is essential and vital.

These courses will also be of great help to men engaged in the occupation of Steam Engineering or of Mining who may not at present intend sitting for Certificates of Competency. Every workman should have as intimate a knowledge as he can obtain of the operations and appliances of his daily occupation not merely because of the possibility of advancement and of better pay but because of the added interest in his work.

The initial courses are simple and suited to the needs of the man beginning to study a new subject, while the advanced courses go more fully into theory, operation and construction.



SPECIAL CLASS OF MINERS IN SURVEYING

The Mining Courses for First and Second Class certificates have been changed this year from 24 lectures to 36 lectures. This revision will allow the subject to be dealt with more fully where experience has shown this to be necessary and will allow a longer time for preparation for the examinations on the part of students.

TABLE OF ENROLMENT, 1920-1921
(Correspondence Courses)

Course	1st Class	2nd Class	3rd Class	Review	Total
Mining Engineering.....	18	38	38	20	114
Steam Engineering.....	8	40	58	..	106
Grand Total....					220

MINING ENGINEERING COURSES BY CORRESPONDENCE

FIRST CLASS

The Mines Act: Rules and regulations; special rules; safety precautions; reports; duties; plans.

Gases: Chemistry of Mine Gases, Shot-firing; safety lamps; explosives and blasting; coal dust and its effect; gas-testing methods and appliances.

Theory and Practice of Ventilation: Laws of ventilation; motive column; humidity; methods of production and control; calculations.

Practical Work: First aid and mine rescue; rescue appliances; mine openings; methods of working; general methods; Alberta methods; pumping; hoisting; haulage; transportation; electricity.

Machinery: Engines; boilers; air compressors; hoists; electric machinery; coal-cutting machinery; haulage motors; pumping machinery; coal-handling machinery.

Surveying and Leveling: Drafting instruments; surveying instruments; methods of surveying; notes; plans; profiles; plotting; areas; calculations.

Geology: Geological terms; geological periods; rocks; stratification; fossils; coal fields of Canada; of Alberta.

Mining Mathematics: Fractions; decimals; proportion; percentage; mensuration of surfaces and solids; angles; trigonometry; logarithms, powers and roots.

SECOND CLASS

The Mines Act: Rules and regulations; safety precautions; accidents; reports; duties; plans.

Ventilation: Gases; shot-firing; safety lamps; measuring instruments; coal dust and explosives; methods of production and control; chemistry of gases; calculations; Burrell Gas Detector.

Practical Work: Mine Rescue appliances; methods of working; mine timbering; shafts and shaft-linings; haulage and transportation; hoisting; pumping, electricity.

Machinery: Boilers; engines; compressors; coal-handling machinery; coal-cutting machinery; pumps; hoists; haulage motors; electric machinery.

Geology: Geological terms; periods; the earth's crust; coal fields of Alberta; prospecting and drilling; mine openings.

Surveying and Leveling: Surveying instruments; methods; plans; profiles; calculations; recording surveys.

Mining Mathematics: Fractions; decimals; proportion; percentage; mensuration of surfaces; logarithms; powers and roots.

THIRD CLASS

The Mines Act: Rules and regulations; duties of officials; safety precautions; reports.

Practical Work: Geology; timbering; methods of working; explosives; fuses; shot-firing; tracks; ditches; cars; haulage; stables; pumps and pumping; dams; siphons; sumps; timbering; surveying.

Ventilation: Instruments; gases and coal dust; naked and safety lamps; gas-testing appliances; production and control of air currents.

STEAM ENGINEERING COURSES BY CORRESPONDENCE

FIRST CLASS

Steam Boilers: Boiler calculations to comply with Canadian Interprovincial Regulations; boilers and fittings; boiler room auxiliaries; boiler settings; combustion; feed water treatment; boiler tests.

Engines: Modern power plants; air compressors and pumps; valves and valve diagrams; governors and fly-wheels; condensers and condensing systems; indicators and power brakes; lubrication and lubricating systems; engine tests.

Refrigeration: Refrigerating systems; operation and testing.

Electrical Engineering: Direct current generators and motors; direct current transmission; direct current switchboards; alternating currents; alternating current machinery.

Mathematics: Mensuration; logarithms and trigonometry; materials of construction; strength of materials; foundations.

Thermodynamics: Theory of heat engines; application to boiler and engine efficiency tests.

Economics: Records; fixed charges; operating charges; principles of rate-making.

SECOND CLASS

Steam Boilers: Description of boilers and fittings; construction, maintenance and repair; simple boiler calculations; boiler room auxiliaries; boiler settings; combustion; feed water treatment.

Steam Engines: Modern engines and turbines; air compressors; pumping engines and pumps; hoisting engines; valves and valve-setting; governors and fly-wheels; condensers; indicated horse-power calculations; lubrication; foundations; maintenance and repair.

Refrigeration: Description of systems.

Electrical Engineering: Units; D.C. transmission and calculations; D.C. generators and motors; D.C. switchboards; troubles.

Mathematics: Mensuration and logarithms; material of construction and workmanship; belt and pulley calculations; strength of bolts, stays, rods, etc.

THIRD CLASS

Steam Boilers: Description of boilers and fittings; construction, maintenance and repair; boiler settings; elements of combustion; feed water, treatment, pumps.

Steam Engines: The steam engine in its simplest form; materials used by engineers; details of engine parts; action of steam in an engine; simple slide valve and valve gears; fly-wheel and governor; description of modern engines and turbines; engine room auxiliaries; lubrication; foundations; maintenance and repair.

Refrigeration: Description of ammonia compression system, operation and repair.

Electrical: Electrical units; operation and maintenance of D.C. and A.C. machines; switchboard operation.

Arithmetic: Up to roots and powers; evaluation of formulae; mensuration of simple areas and solids.

EVENING CLASSES

The object of this work is to enable persons employed in the day time to increase their knowledge of their trade or industry by taking a course in the theory of it at night or by taking a course in an allied subject which will assist them in their regular occupation.

As this work develops, an increase in the number of classes in shop work will be made and ultimately a student will be able to complete any regular course by evening work.

The classes are held two evenings per week and the time-table is arranged to permit a student taking two allied subjects during one term.

MECHANICAL DRAFTING

Use of instruments and dimensions; tracing and photo printing; freehand drawing and lettering, line shading, drawing small machine parts, such as nuts, bolts, rivets, joints, keys, couplings and pulleys for shafting, etc., followed by more complicated machine drawings and in the final stage of the course, if the student has made the requisite progress, he is given a series of simple machine parts to design.

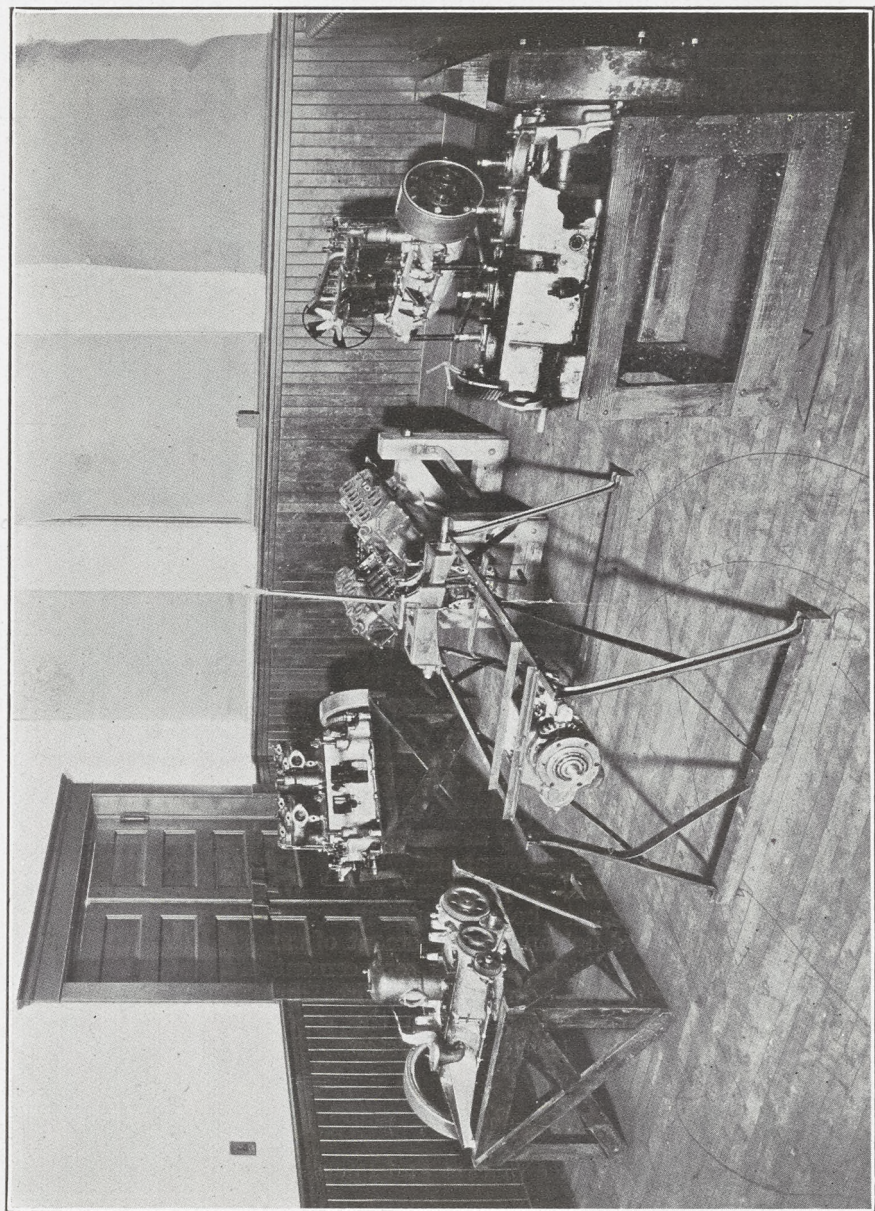
ARCHITECTURAL DRAFTING

The use and care of drawing instruments and equipment, etc., and the methods of procedure in making full size scale drawings and tracings in pencil and ink on paper and linen.

Drafting practice on sheets, illustrating, symbols used, block plan, bonds in brick and stone; joints used in woodwork; sections of common trim, common doors, sashes and frame, stair details, arches, steel construction, reinforced concrete construction; set of drawings for a small building, etc.

RAILWAY DRAFTING

The use and care of drawing instruments; methods of procedure in making plans or maps to scale; practical work based on field notes; progress and final profiles; earth quantities on the profile; timber quantities on the profile (culverts and bridges), bills of material.*



EQUIPMENT OF SECTIONALIZED PARTS FOR MOTOR ENGINEERING STUDENTS

TELEGRAPHY

Good legible penmanship is a pre-requisite for this course.

This course embraces:

Correct sending and receiving of commercial and railway matter; handling of train orders, railway service messages. Special stress is placed upon the correct handling of train orders and telegrams.

Telegraph rules and rates; railway freight rates and classification and all railroad station work as would be required of an operator. Some time is devoted to typewriting.

The nature of this work precludes specifying the exact time allotted to each of the foregoing subjects, but the work is taken up in proper sequence.

A C.P. Railway Service Loop is installed and in use at the Institute. This affords the students splendid practice in receiving.

MOTOR MECHANICS

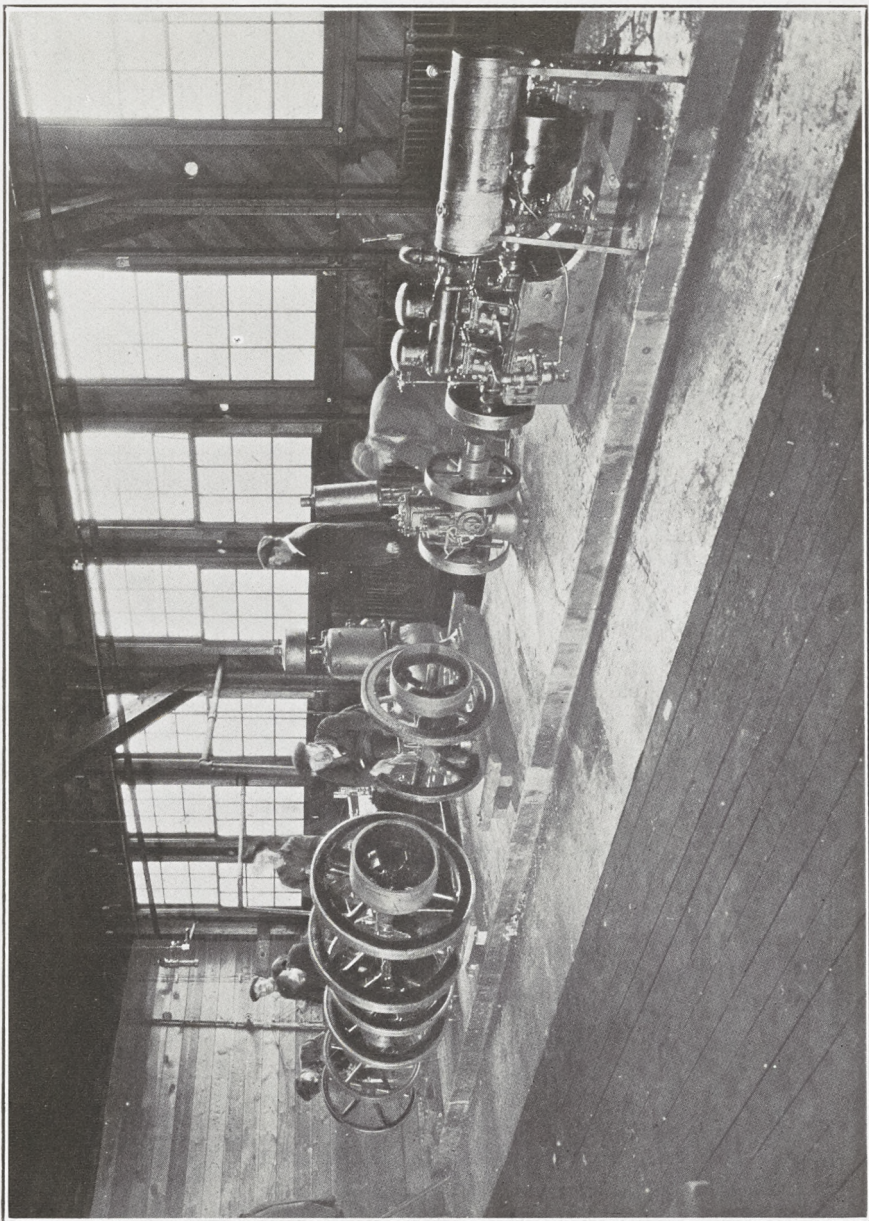
(Lecture and Demonstration)

The radiator and cooling system; repair and care of same. Springs and shackles. The motor; grinding valves; adjustment; diagnosis of various troubles; timing of valves, tappit, adjustment, etc. Carburettors; various types; adjustment and repair. Clutches; the various types; the cone clutch; care and adjustment; the disc clutch; care and adjustment; friction clutches. Transmission; various transmission ills; how to locate and correct same; why the transmission is necessary; how to locate and correct noisy gears; how to replace stripped gears, worn bushings, etc. Universal joints, why necessary; care and repair. Torsion rods and tubes; why necessary; the care of same. Differential adjustment, replacement and repair. Axles, various types; replacement of same; adjustment, etc. Wheels; importance of proper adjustment; how to line up front and rear wheels, etc. Starting and lighting; replacement of same. Principles of operation; care, adjustment and replacement of same. Steering column, care and adjustment. Tires; proper care; repairing tubes; repairing blow-outs on the road; fuels and lubricating oils, various lubricating systems.

MACHINE SHOP PRACTICE

Shop Work.—Practice in care and operation of the following machines.

Lathe.—How to grind and take care of tools, cutters, etc.; screw-cutting; square and V-threads; tapering; boring; inter-



changing of gears; speed and feeds for different classes of work; centering; instruction in shrinking, driving and working fit; use of inside and outside calipers.

Drilling Machine.—Instruction on setting up of work; using square and surface gauge; cutting of key seats, etc.

Milling Machine.—Students that have made sufficient progress on the other machines will be given instruction in the cutting of various kinds of gears.

ELECTRICITY

Lecture and Demonstration

Laws of attraction and repulsion, magnets and magnetic flux. Induction: laws of electro-magnetic induction; primary cells; secondary cells; various types of induction coils. Generation of electric currents. Application of Ohm's Law; circuits; series; shunt and compound machines; A.C. generators; A.C. motors, rectifiers, transformers, instruments.

Enrolment, 1920-1921.....35

ARMATURE WINDING

Taping, insulating, forming of various types of coils and winding them on machines. Testing for "Shorts," "Opens," etc.

Enrolment, 1920-1921..... 9

EXTENSION WORK

Extension work is carried on at night classes under local school boards, in various centres.

The instructor of the local evening class upon application to the Institute will receive outlines of courses, notes for the various lessons, sketches to be used, and lantern slides (for the towns that have facilities for the projection of them). The extension classes organized during term 1920-21 were: Mining, Steam Engineering, Tractor work and Motor Mechanics.

ENROLMENT, 1920-1921

Course	Day	Part day	Even- ing	Cor- res- pon- dence	Total
Armature Winding.....		3	8		11
Battery and Ignition			37		37
Car Owners			9		9
Drafting.....	7	4	33		44
Drawing and Design		6			6
Electrical Engineering...	19		35		54
Machine Shop Practice..			21		21
Mining Engineering.....	10			114	124
Motor Mechanics.....	32	4	25		61
Shop Mathematics.....			9		9
Steam Engineering.....	13	7	16	106	142
Tractor Engineering.....	25				25
Tractor Engineering (Special).....	59				59
Telegraphy.....			34		34
Totals.....	165	24	227	220	636

STUDENTS' ASSOCIATION

1920-1921

President.....W. A. Johnson (Electrical)
Vice-President.....J. A. Long (Tractors)
Secretary.....C. Emerson (Motor Mechanics)

Executive

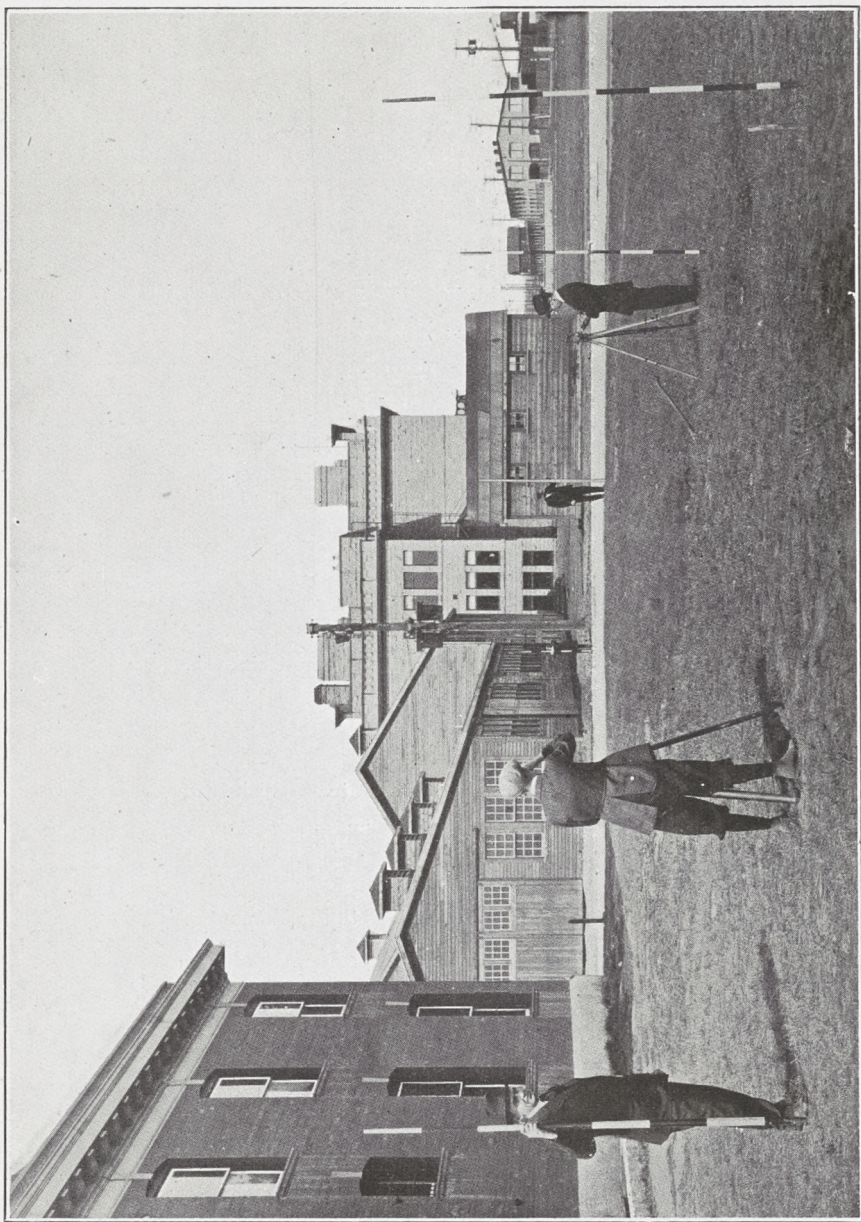
A. J. Ruttan (Motor Mechanics)
R. McGuire (Tractors)
John McCaslin (Electrical)
M. Brunner (Steam Engineering)
F. A. Varsevelt (Drafting)

The students formed the Association during January for the purpose of promoting an intellectual and physical improvement and a better social intercourse among themselves. This they accomplished by means of a literary society and of an athletic association. The results have been entirely satisfactory. The committee in charge of Literary work held a debate on alternate Friday afternoons. Excursions were arranged and visits paid to different industrial plants in the City.

In athletics, while various games were practised, Basketball was the only one in which outside games were played. The results were very creditable to the Institute students.

Athletic Equipment

Basketball Outfit	Horizontal Bars
Indoor Basketball Outfit	Spring Jumping Board
Outdoor Basketball Outfit	Punch Bag
Football Outfit	Wrestling mats, etc.



CLASS IN SURVEYING

CORRESPONDENCE

COURSE IN COAL MINING

REVIEW STUDENTS

1920-1921

Coupland, E.....	Cadomin
Lindoe, Luke.....	Coleman
D'Altroy, Arthur	Blairmore
McAskill, Donald.....	Ardley
Campbell, K. S.....	11218 65th St., Edmonton
Tennant, Robert.....	1909 7th Ave. N., Lethbridge
Turner, John H.....	Coalhurst
Taylor, James.....	Coal Creek, B.C.
Brady, J.....	Drumheller
Roberts, D. O.....	Western Commercial Co., Wayne
Crawford, John.....	Lovettville
Conlin, John.....	Drumheller
Ashman, A. W.....	Miette Mines, Pocahontas
Crawford, Alex.....	Lovettville
Roberts, George.....	Box 362, Taber
Bainbridge, James.....	10326 95th St., Edmonton
Bainbridge, Geo. E.....	Brazeau Mines, Nordegg
Thomas, Isaac.....	Box 171, Coleman
Bushell, J. P.....	Box 213, Fernie, B.C.
Fyfe, Walter H.....	Box 133, Wayne

CORRESPONDENCE
COURSE IN COAL MINING
1920-1921

(R.S. Means Returned Soldier.)

FIRST CLASS STUDENTS

Carson, James.....	Wayne (R.S.)
Mackie, John.....	Hillcrest (R.S.)
Reed, Edward.....	Box 79, Drumheller
Nugent, Bernard.....	Elcan
Dalziel, Robert.....	Box 121, Beverly
Barclay, William.....	Drumheller
Hutton, John.....	Sunnyside Hospital, Calgary (R.S.)
Piard, Marc.....	Box 10, Bellevue
Sneddon, Thomas.....	Taber (R.S.)
Williams, Arthur E.....	Saunders (R.S.)
Scott, Frederick G.....	730 17th St. N., Lethbridge
Steel, F. M.....	Cosmopolitan Hotel, Castor
Fraser, James.....	Carbon
Heap, Robert.....	Coalhurst
Strickland, Thomas.....	9315 102a Ave., Edmonton
Marsh, Ernest.....	Taber
Bowie, James I.....	Pocahontas
Roberts, E.....	Cardiff

SECOND CLASS COURSE

Douglas, D. B.....	General Delivery, Edmonton
Bond, William.....	Wayne (R.S.)
Mitchell, Archie.....	Jewel Mine, Wayne (R.S.)
Fraser, Alexander.....	Box 32, Carmangay
Gidman, Jos. H.....	Box 187, Taber (R.S.)
McGowan, Walter H.....	Box 453, Drumheller (R.S.)
Jones, Evan J.....	1719 10th Ave. W., Calgary (R.S.)
Ruscoe, Richard.....	Halkirk
Bain, James.....	Hillcrest (R.S.)
Warren, Michael.....	Canmore
Monkton, William.....	Rosedale
Rappell, Thomas.....	Rosedale
Roberts, Evan.....	Western Commercial Co., Wayne
Travis, Joseph.....	Bankhead
Womersley, Alfred.....	Redcliff
Johnstone, Alexander.....	Clover Bar
Appleton, John T.....	Box 16, Mountain Park
Head, James.....	Taber
Morgan, William.....	Box 352, Fernie, B.C.
Hutton, Hugh.....	Box 38, Bellevue (R.S.)
Hyde, Isaac.....	Mountain Park
Du Rocher, Francis.....	Nanton
Barringham, Frederick J.....	Rosedale
McAndrew, Robert.....	Box 1141, Edmonton
McKenna, Peter.....	Bellevue
Yard, George C.....	Nordegg
McDade, John.....	Big Valley
Oliphant, John.....	Box 917, Medicine Hat
Williams, E.....	Commerce
Smith, Harry.....	Aerial
Hopkins, Wm. George.....	Coleman (R.S.)
McNeil, Daniel.....	Cardiff (R.S.)
Kehl, Isadore.....	General Delivery, Edmonton
Goodwin, Watts.....	327 11th Ave. E., Calgary (R.S.)
Willettts, Frederick.....	Hillcrest
McKeague, H. A.....	Western Gem Mine, Drumheller
Greenwood, David.....	Box 397, Taber (R.S.)
McKinnie, J.....	616 7th Ave. E., Calgary

THIRD CLASS COURSE

Shaw, James.....	Western Commercial Co., Wayne
James, Albert J.....	Forestburg
Hall, James.....	Brazeau Mines, Nordegg (R.S.)
Fourneau, Jean.....	Bellevue
Barrie, James.....	Commerce
Batie, James A.....	Bassano
Lindqvist, Victor.....	7806 Windsor St., Vancouver
Thomson, James.....	Beverly
Duncan, David.....	c.o. Wm. Collins, Route No. 1, Edbert
Downe, Henry.....	Box 141, Carbon
Drummond, J. W. A.....	Box 332, Drumheller
Bedwell, Alfred E.....	619 13th St., Lethbridge
McGaw, Albert M. S.....	Carmangay
Hook, Alfred John.....	Halkirk
Wollett, Charles.....	12010 76th St., Edmonton
Hodgson, John R.....	Rowley
Davis, Elmer.....	Gadsby
Gracie, Robert.....	Canmore (R.S.)
Morris, Albert.....	Brazeau Mines, Nordegg (R.S.)
Owen, Wm. L.....	Mountain Park
Hutchinson, George E.....	Lovett
Thornhill, J. E.....	Coalhurst
Burton, Jack R.....	Box 275, Canmore (R.S.)
Love, Edmund R.....	Pocahontas (R.S.)
Hewitt, Joseph.....	Suite 6, 343 14th Ave. W., City
Zimmer, Frederick.....	Pocahontas (R.S.)
Murray, William.....	Pocahontas (R.S.)
Southworth, John.....	General Delivery, Edmonton
Thomas, Ernest.....	Rosedale
Yanota, John.....	Bankhead
James, John.....	Coleman
Stene, David, Jr.....	Pocahontas (R.S.)
Medloski, Joseph.....	Rosebud Creek
Cardle, James.....	766 9th Ave. E., City
Veasey, E. G.....	Rosedale
Meyers, August.....	Box 241, Drumheller
Vickers, William.....	Taber
Jordan, Benjamin.....	Saunders Creek

CORRESPONDENCE

COURSE IN STEAM ENGINEERING

1920-1921

FIRST CLASS COURSE

Thompson, J.....	Claresholm
Devonshire, George.....	Banff
Speight, J. A.....	Midlandvale
McIntyre, J.....	Coalhurst
Stockett, T. R.....	Bankhead
Scarr, J. J.....	Bankhead
Sekul, Steve.....	10632 97th St., Edmonton
Hope, George.....	Coleman

SECOND CLASS COURSE

Fitzpatrick, J.....	820 9½ St., Sunnyside, Calgary
Milner, Samuel.....	Hardieville P.O., Lethbridge
Shirlow, E.....	10239 106th St., Edmonton
Orr, J. E.....	Cadomin
Salt, William.....	Bankhead
Wight, Eugene.....	Drumheller
Biamonte, D.....	Clover Bar
Lynn, John.....	1310 15th Ave. W., Calgary
Leeming, James.....	Box 1545, Calgary
Rodoway, A. E.....	Didsbury
Miller, William.....	Commerce
Anderson, D. L.....	Wayne
Eltherington, G. R.....	1023 18th Ave. E., Calgary
Nicholson, J. M.....	Cadomin
Findiater, J.....	Nordegg
Lindstrom, A.....	Hanna
Lindsay, R.....	Delia
Wilson, Richard.....	Drumheller
Scott, J. H.....	Bashaw
Normandeau, P. F.....	Knee Hill Valley
Kaufman, A. E.....	Donalda
Butz, C. DeWitt.....	Brule
Breach, F. G.....	St. Albert
Grant, Henry.....	Medicine Hat
Allan, Robert.....	2107 16a St. W., Calgary
Allan, J.....	Bankhead
Johnson, W. A.....	Eckville
Miller, W. G.....	Fort Saskatchewan
Coppen, S.....	9613 107th Ave., Edmonton
Kane, Norman.....	Rosedale
Pennycook, D.....	Brule
Powen, O. H.....	Coalspur

Beattie, G. A.....	Box 138, Calgary
Nixon, George.....	Craigmyle
Luck, Norman.....	Red Deer
Parkham, J. D. H.....	Drumheller, Alberta
Pearson, K. B.....	223 15th Ave. W., Calgary
Foreman, D. G.....	1204 Salisbury Ave., Calgary
Nightingall, G.....	831 1st Ave., Calgary
Dingley, J.....	206 Underwood Blk., Calgary
Clegg, W. H.....	231 10th St. N.E., Calgary

THIRD CLASS COURSE

Lawerence, F. N.....	Wayne
Poirier, Homer.....	Brule
Ritchie, J.....	Bankhead
Stahl, J. J.....	Rockyford
Jackson, J. W. C.....	Box 130, Acme
Martin, W. H.....	Brule
Murikami, F. T.....	Midlandvale
Ross, J. J.....	Scollard
Murphy, W. M.....	Hillcrest
Riley, J.....	Lacombe
Nelson, H.....	Strome
Anderson, W. F.....	Junkins
Haslett, H. R.....	20 Argyle Court, Calgary
Pratt, R.....	Bankhead
Thompson, J. L.....	Olds
Coleridge, Thomas.....	Bankhead
Gibson, J. H.....	2817 25th St. W., Calgary
McLellan, J. H.....	Viking P.O.
Findlay, W.....	933 2nd Ave. N.E., Calgary
Henderson, W.....	Hillcrest
Craig, J.....	Bankhead
Lindsay, J.....	10563 96th St., Edmonton
Moysink, D.....	Hillcrest
Bolton, Geo.....	General Delivery, Edmonton
Hagerty, C. J.....	Basing.
MacFadyen, N.....	Drumheller.
Johnson, Nathan.....	Taber
Edgar, W. H.....	Coleman
Ohrburg, Carl.....	Athabasca
Stainbrook, Henry.....	Drumheller
Letcher, J. R.....	Brule
Henchel, A.....	Bruderheim
Bennett, Norman.....	Camrose
Gort, J.....	8838 100th Ave., Edmonton
Walters, F. J.....	9620 107a Ave., Edmonton
Fenton, J. E.....	9321 103rd Ave., Edmonton
Battle, John.....	Delia

Allan, George.....	Box 11, Drumheller
Langford, W.....	Rosedale
Robinson, S.....	Coalspur
Garner, W. H.....	Three Hills
Sage, David.....	Hanna
Wardrop, P. A.....	Keith Sanatorium, Calgary
Murphy, W. M.....	Keith Sanatorium, Calgary
Anderson, J. R.....	Scotfield
Cole, J. A.....	Coleman
Doering, A.....	Bulwark
Collins, R. E.....	Delburne
Barnes, George.....	Mountain Park
Chadderton, E.....	Edmonton
Elgaan, J. E.....	Killam
Stevenson, R.....	11926 81st Ave., Edmonton
Ansett, A. R.....	Box 645, Red Deer
Gracey, H. A.....	610 3rd Ave. W., Calgary
Hay, W. P.....	424 Blvd. N.W., Calgary
Metz, Lester.....	Lougheed

ENROLMENT

1920-1921

ARMATURE WINDING

Part Day Class

Burluck, J.....	3636 4th St. S.W., Calgary
Melton, A. R.....	203 4th St. N.E., Calgary
Stevens, N. E.....	1722 28th Ave. W., Calgary
Yuill, W. C.....	442 First St., Medicine Hat

DRAFTING

Full Day Class

Crichton, J.....	Vulcan
Laundon, C.....	Calgary
Smith, W. A.....	Winnipeg, Man.
Standell, B. A.....	417 6th St. N.E., Calgary
Vanderhoogen, H.....	2337 6th St. E., Calgary
Varseveld, F. A.....	Three Hills
Watson Robt.....	530 6th Ave. W., Calgary

Part Day Class

Mitchell, B. H.....	729 17th Ave. W., Calgary
Stevens, N. E.....	1722 28th Ave. S.W., Calgary
Wakelyn, E. M.....	1417 1st Ave. N.E., Calgary
Yuill, W. C.....	442 First St., Medicine Hat

DRAWING AND PAINTING

Part Day Class

Cole, D.....	313 21st Ave. W., Calgary
Costello, M.....	322 20th Ave. W., Calgary
McManus, B.....	2102 2nd St. W., Calgary
Sister St. Rita.....	St. Anne's Convent, Calgary
Sister Mary.....	Sacred Heart School, Calgary
Sister Madeline.....	Sacred Heart School, Calgary

ELECTRICAL

Full Day Class

Bardacke, J.	216 8th St., Bridgeland, Calgary
Beggs, F. W.	Strathmore, Alta.
Bellamy, S. R.	Keoma, Alta.
Burns, R. J.	Carleton Place, Ontario
Burvill, E. V.	5002 Burnsland Ave., Calgary
Dunlop, Percy	533 7th Ave. W., Calgary
Johnson, W. A.	Robertson, Alta.
Keobke, E.	Munson, Alta.
Kerslake, E.	Youngstown, Alta.
Kinchin, F. G.	1810 6th St. N.W., Calgary
Mielecki, C.	Box 1662, Calgary
Murray, D.	130 21st Ave. W., Calgary
McCaslin, J.	803a Bramer St., Medicine Hat
Nicholson, J. M.	Forest Lawn, Alta.
Norris, W. E.	Ersline, Alta.
Pratt, D.	Box 188 Drumheller, Alta.
Reynolds, G. F. W.	Medicine Hat, Alta.
Riley, W.	High River, Alta.
Wilson, D. F.	Calgary

MOTOR MECHANICS

Full Day Class

Barnes, C. J.	Castor, Alta.
Black, H. H.	Strathmore, Alta.
Brand, H.	429 12th Ave. E., Calgary
Bright, A.	Botha, Alta.
Bruce, Elmer	1205 14th Ave. W., Calgary
Cawsey, T. R.	Winnipeg, Man.
Clark, E. P.	Ghost Pine Creek, Alta.
Coad, R. L.	Youngstown, Alta.
Coates, A. B.	Howie, Alta.
Cottle, F.	1418 11th Ave. E., Calgary
Coulter, E.	505 5th Ave. W., Calgary
Cranston, F. G.	Munson, Alta.
Crapser, H. L.	Netherhill, Sask.
Emerson, C.	719 14a St. E., Calgary
Fisher, J. E.	Munson, Alta.
Gazely, P. J.	National Hotel, Calgary
Glenn, A. E.	1621 17th Ave. W., Calgary
Kestner, Geo. T.	Loyalist, Alta.
Kinsey, A. H.	625 11th Ave. W., Calgary
Lamle, A.	Standard, Alta.
Leggett, Robt.	Edgerton, Alta.
Naegelli, Otto	Ghost Pine Creek, Alta.
Roche, M. J.	Vulcan, Alta.

Ruttan, A. J.	2111 14th St. W., Calgary
Sevenson, A. O.	Vidora, Sask.
Smith, Ed.	Calgary, Alta.
Slusar, I.	Calgary
Watson, Pete	210 14th Ave. E., Calgary
White, C.	Banff, Alta.

Part Time Students

Splane, J. G.	226 5th Ave. N.E., Calgary
Steele, J. A.	Calgary, Alta.
Willis, Geo.	305 5th St. W., Calgary
Wood, Harry	2929 17th St. S.E., Calgary

STEAM ENGINEERING

Full Day

Anderson, G.	Banff, Alta.
Barnes, F.	2137 16th St. W., Calgary
Brunner, Max.	Ogden, Alta.
Dowling, N.	11018 125th St., Edmonton, Alta.
Hansen, H.	Harvie, Alta.
Kulpas, Gus.	Barons, Alta.
Mooney, J.	517 20th Ave. W., Calgary
Pearson, K. B.	Edmonton, Alta.
Peters, E. G.	1016 8th Ave. E., Calgary
Rea, Stanley	620 7th Ave. W., Calgary
Scott, E. P.	Edmonton, Alta.
Strange, J.	739 6th Ave. W., Calgary
Urback, A.	614 8th Ave. E., Calgary

Part Time Day

Beauchamp, T.	614 Centre Ave. N.E., Calgary
Dahl, G. C.	2518 16th St. E., Calgary
Gouriey, A.	821 21st Ave. E., Calgary
Gracey, H. A.	810 3rd Ave. W., Calgary
LaBonte, F.	Calgary, Alta.
Milton, C.	2317 16a St. W., Calgary
Partin, W. H.	442 14th Ave. N.E., Calgary

TRACTOR COURSE

Full Day Course

Adsett, F. K.	Munson, Alta.
Allan, L. H.	Mazeppa, Alta.
Beck, J.	Bingville, Alta.
Carran, Homer	Benton, Alta.
Close, F.	2915 17a St. E., Calgary
Crapser, H. L.	Netherhill, Sask.

Gadzieski, J.	Forest Lawn, Alta.
Harris, F.	502 11th Ave. E., Calgary
Jackson, H.	Westerdale, Alta.
Kestner, George	Loyalist, Alta.
Lawrence, F. N.	Wayne, Alta.
Lawrence, J. J.	Calgary, Alta.
Long, J. A.	Blackie, Alta.
Moore, G.	2524 16th St. E., Calgary
McGuire, R.	Langdon, Alta.
Nash, A. E.	DeWinton, Alta.
Oughton, J. B.	Hubalta, Alta.
Patterson, A.	Lethbridge, Alta.
Redden, A. E.	Cluny, Alta.
Richard, N.	Pine Bluff, Alta.
Riches, N.	General Delivery, Calgary
Shields, W. J.	1005 8th Ave. E., Calgary
Steeves, F.	1733 26th Ave. E., Calgary
Thompson, A.	Calgary, Alta.
Ward, M. J.	Calgary, Alta.
Windle, J.	Calgary, Alta.

SPECIAL TRACTOR COURSE

Anderson, J. I.	Barnwell, Alta.
Bailey, W. S.	Lomond, Alta.
Bagley, A. E.	1707 3rd Ave. W., Calgary
Barnhard, A. J.	Fleet, Alta.
Berry, Geo. H.	Olds, Alta.
Bountiny, E. K.	Senlac, Sask.
Brown, W.	Cowley, Alta.
Carswell, F.	Consort, Alta.
Christensen, C. S.	Monitor, Alta.
Cusick, A. F.	809 17th Ave. E., Calgary
Doig, J.	303 13th Ave. E., Calgary
Drury, Ed.	Edgerton, Alta.
Eidsnig, K.	Verdant Valley, Alta.
Evans, Keith.	Parkland, Alta.
Fraser, J.	Carmangay, Alta.
Fyfe, R. W.	Benton, Alta.
Halliwell, J.	313 15th Ave. E., Calgary
Hart, T.	319 11th Ave. E., Calgary
Harvey, J.	509 Centre Ave. N., Calgary
Heine, T. C.	Strathmore, Alta.
Holland, Delosse.	2022 34th Ave. W., Calgary
Huff, Buell.	Hamlin, Alta.
Lambert, W. F.	Munson, Alta.
Larsen, P.	Iddesleigh, Alta.
Larsen, H.	Iddesleigh, Alta.
Larsen, E.	Iddesleigh, Alta.

Lawrie, J. B.	Namaka, Alta.
Lawrie, S. W.	Namaka, Alta.
Mattey, C. G.	Fertility, Alta.
Mattson, G. I.	Sylvan Lake, Alta.
Maxfield, C. A.	Keoma, Alta.
Milne, J.	1142 10th St. E., Calgary
Mobberly, W. E.	Veteran, Alta.
McGillivray, J.	Blackhillock Farm, nr. Calgary
M'Whinnie, J.	Hearnleigh, Alta.
Natland, A.	Morin, Alta.
Nichols, F. H.	Okotoks, Alta.
Norby, W.	Sylvan Lake, Alta.
Parsons, H. B.	Springbank, Alta.
Price, W. L.	420 14th Ave. E., Calgary
Ruby, E.	802 Blvd., Sunnyside, Calgary
Simmons, W. L.	Cairstairs, Alta.
Skaro, T. H.	Provost, Alta.
Spady, C.	Consort, Alta.
Stauffer, E. E.	Park Hotel, Calgary
Stephen, D. J.	1737 10th Ave. W., Calgary
Tenjford, O. O.	Veteran, Alta.
Timms, J.	Consort, Alta.
Tubman, T. R.	1107 11th Ave. W., Calgary
Valantine, Lionel	Bulwark, Alta.
Vali, E.	Sylvan Lake, Alta.
Warren, D. H.	203 Burns Block, Calgary
Woods, A.	621 1st Ave. N.E., Calgary
Young, W. J.	Springbank, Alta.







